LIMETREE BAY
REFINING, LLC

July 21, 2020

Ms. Carmen Guerrero, Director
Enforcement and Superfund Branch
US Environmental Protection Agency
City View Plaza II, Suite 7000
#48 Rd. 165 km 1.2
Guaynabo, PR 00968-8069

Subject: **Limetree Bay Refining, LLC (LBR) CEMS Certification and Performance Testing Notification**

Dear Ms. Guerrero:

Pursuant to 40 CFR §60.7(a)(5), 60.8(d), VIRR 206-25(b) and Title V Permit STX-TV-003-10, Limetree Bay Refining, L.L.C. (LBR) hereby notifies you of our upcoming tests to demonstrate performance of certain continuous emissions monitoring systems (CEMS) and performance testing for the units listed below.

The enclosed documents contain location-specific test plans detailing the testing locations, operating conditions, and a listing of EPA reference methods that will be used for the CEMS certification and performance tests as well as any unit-specific details or deviations from reference method procedures.

The test program is scheduled to begin no sooner than August 21, 2020. A specific test schedule will be determined based on the operating status of the various units to be tested at the facility and stack tester travel and work restrictions in effect as a result of COVID-19. A specific test schedule will be provided to the Administrator upon request.

Source / Emission Point	Type of Test & Reason for Test
#10 Boiler (B-3701)	NO_x & O_2 CEMS Certification *§60.48b, Title V 5.2.1.7.2* NO_x Performance test (lb/mmBtu using 30-days of CEMS data) *§60.46b, Title V 4.2.1.3.2* CO Performance test (lb/mmBtu) *Consent Decree Appendix H, Title V 4.2.1.3.4*
# 8 and #9 Common Stack Boilers (B-3303 & B-3304)	NO_x & O_2 CEMS Certification *§60.45, Title V 5.2.1.6.4* NO_x Performance Test *§60.46, Title V 4.2.1.2.1* Visible Emissions Performance test *§60.45(b)(7)*
GT No.7 (G-3407)	NO_x Performance Test *§60.335, First Modification of the Consent Decree ¶136* SO_2 Fuel Sampling Performance Test *§60.335*
GT No.8 (G-3408)	NO_x Performance Test *§60.335, First Modification of the Consent Decree ¶136* SO_2 Fuel Sampling Performance Test *§60.335*

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GT No. 9 (G-3409)	NO_x, CO & O_2 CEMS Certification (Main & Bypass Stack) *§60.334(b), Title V 5.2.4.2.20,* NOx Performance Test *§60.335,* SO_2 Fuel Sampling Performance Test *§60.335*
GT No.10 (G-3410)	NO_x, CO & O_2 CEMS Certification (Main & Bypass Stack) *§60.334(b), Title V 5.2.4.2.15* COMS Certification (Main & Bypass Stack) *Title V 5.2.4.2.17* SO_2 Fuel Sampling Performance Test *§60.335*
GT No. 13 (G-3413)	NO_x, CO & O_2 CEMS Certification (Main & Bypass Stack) *§60.4345(a), Title V 5.2.4.3.6 and 5.2.4.3.8*
East Fuel Gas Mixing Drums (D-3307 & D-3354)	H_2S CEMS Certification *§60.105(a)(4),Title V 5.2.2.3,* H_2S Performance Test *§60.106(e)(1)*
#8 Vaporizer Fuel Gas (E-2118)	H_2S CEMS Certification *§60.105(a)(4), §60.107a(a)(2), Title V 5.2.2.3,* H_2S Performance Test *§60.106(e)(1), §60.104a(a)*
Flare #8 (STK-7941)	H_2S, TRS CEMS Certification *§60.107a(a) and (e), First Modification of the Consent Decree ¶50C* NHV Performance Demonstration *§63.670(j) and Table 13* H_2S Performance Test *§60.104a(a)* Visible Emissions Demonstration *§63.670(h)*
East Incinerator (H-4745)	SO_2 & O_2 CEMS Certification *§60.106a(a)(1), Title V 5.2.2.7.5* SO_2 Performance Demonstration *§60.104a((h)*

Thank you for your attention to this matter. If you have any questions regarding this submittal, please contact Catherine Elizee at (340) 692-3073.

Sincerely,

Robert Weldzius
Senior Vice President, Refining

Attachment
Cc: Harish Patel (EPA Region 2) w/attachment
Verline Marcellin (DPNR) w/attachment via email

Limetree Bay Refining Operating, LLC
#10 Boiler (B-3701)
Compliance Test Plan
40 CFR Part 60

Anticipated Test Dates: August 2020

For

Limetree Bay Refining Operating, LLC
#1 Estate Hope
Christiansted, VI 00820

Prepared by:

RTP Environmental Associates, Inc.
304-A Millbrook Road
Raleigh, NC 27609

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1.0 INTRODUCTION

Limetree Bay Terminals, LLC / Limetree Bay Refining Operating, LLC (LBR) is in receipt of Construction Permit STX-924-AC-18 issued by the U.S. Virgin Islands Department of Planning and Natural Resources (VI DPNR). Construction Permit STX-924-AC-18 permits the modification of certain process units in order to resume refining operations at the LBR refinery which were idled under previous ownership in 2011 and 2012. Consistent with the permit application, LBR shall continue to comply with the applicable regulatory requirements as defined in Title V Permit No. STX-TV-003-10 for all emission units affected but not modified by the construction project (the "MARPOL" project). A revised Title V Permit application was submitted on July 17, 2019. At the time of preparation and submittal of this test plan, a final revision of Title V permit has not been received. LBR is also in receipt of the First Modification of the facility Consent Decree (Civ. No. 1:11-cv-00006), hereafter referred to as the facility Consent Decree.

LBR has prepared the following compliance test plan to meet the notification requirements for required performance test(s) and the continuous emissions monitoring system (CEMS) performance evaluation test(s) ("CEMS certification test") as set forth by the Environmental Protection Agency (EPA) in Title 40 of the Code of Federal Regulations Part 60 (40 CFR Part 60) §60.7(a)(5), Title V Permit No. STX-TV-003-10, and the Virgin Islands Air Code (CVIR 12-009-000) Section 206-25(b). This compliance plan discusses the stack CEMS certification testing as well as the performance testing that will take place upon re-start of #10 Boiler (Source ID B-3701).

The gaseous CEMS measure the mass emissions of NO_x in units of pounds per million British thermal units (lb/mmBtu). This test plan outlines the procedures to be followed, the test methods to be used, and any requested deviations from either the specific conditions or limitations as listed in Air Permit No. STX-TV-003-10, or from the test methods themselves. Table 1 provides a summary of the relative accuracy criteria for each component being assessed as part of the RATA.

Table 1: Relative Accuracy Criteria

Parameter	Units	Relative Accuracy Specification	
		RM Mean ≥50% of Emission Standard	RM Mean <50% of Emission Standard
NO_x	lb/mmBtu	20% of RM Mean	10% of Emission Standard
Diluent CEMS		**Primary Criteria**	**Alternative Criteria**
O_2	%d	20% of RM Mean	±1.0% Absolute Difference

Mostardi-Platt is anticipated to perform the EPA reference method (RM) testing for this test project and provide the written report summarizing the results of the test program. Overall project oversight and test protocol development will be provided by RTP Environmental Associates (RTP). Table 2 contains the contact information for all relevant parties.

Table 2: Test Program Contact List

Contact	Company	Address	Phone/Email
Ms. Maria Aloyo	LBR	1 Estate Hope Christiansted, VI 00820-5652	340-692-3781 MAloyo@lbenergy.com
Mr. Stuart Burton	Mostardi-Platt	888 Industrial Drive Elmhurst, IL	630-993-2100 SBurton@mp-mail.com
Ms. Bethany White	RTP	304A West Millbrook Rd. Raleigh, NC 27609	919-578-4876 bwhite@rtpenv.com

The test program is scheduled to begin no sooner than August 21, 2020. A specific test schedule will be determined based on the operating status of the various units to be tested at the facility during the test program. A specific test schedule will be provided to the Administrator upon request.

Appendix 1 contains Reference Method (RM) 1 site location information for B-3701, sample traverse points for the RM 3A, 7E and 10 for each test run.

1.1 TIMING OF TESTS

Initial performance tests demonstrating compliance with the NO_x emission standard and the carbon monoxide (CO) emission standard in Title V Permit STX-TV-003-10 were conducted under previous ownership. Subsequent performance tests for CO are also required on an annual basis in accordance with Consent Decree requirements. Consistent with Appendix L of the draft Consent Decree, a performance test for CO will be conducted within 60 days after achieving the maximum production rate at which #10 Boiler will be operated or within 180 days after the

initial restart of #10 Boiler. For a fuel combustion device, restart is resumption of operation while combusting fuel gas.

CEMS certification tests were conducted under previous ownership in accordance with 40 CFR Subpart A §60.13(b). As a result of source idling, the required quality assurance and quality control activities for the CEMS were not conducted. Consistent with Condition 2.4.13.5 of the revised Title V permit application, a RATA will be conducted within 120 calendar days after resuming Regular Operations where "Regular Operations" means that the idled unit has reached sustained operations and is now operating as intended in support of the output of product(s) or services after having been idled. In order to resume operation of the CEMS, certain major components[1] of the previously certified CEMS system have been replaced. As such, LBR intends to conduct a complete certification of the CEMS system in lieu of performing only a RATA for the system.

Following the RATA, an initial performance tests demonstrating compliance with the NO_x emission standard in NSPS Subpart Db will be conducted using data collected by the certified CEMS.

The CEMS certification test as well as the CO performance test may be performed while combusting site-produced fuel gas, purchased propane, or a combination thereof. The certification of the H_2S CEMS which measures the common source of fuel gas for B-3701 will not be conducted until site-produced fuel gas is available for combustion[2]. A separate notification will be prepared to summarize the H_2S CEMS certification tests.

[1] Though not specifically identified in rule text, LBR considers complete replacement of a probe that changes the sampling location, umbilical, or analyzer as major components for which recertification of the CEMS would be prudent.

[2] Until such time that site-produced fuel gas is combusted, B-3701 is not a fuel gas combustion device as defined 40 CFR Subpart J §60.101 and is not subject to the H_2S monitoring requirements of 40 CFR Subpart J §60.105(a)(4).

2.0 FACILITY DESCRIPTION

2.1 Facility Location

The LBR facility is located at 1 Estate Hope in Christiansted, St. Croix, Virgin Islands.

2.2 Source Descriptions

B-3701 is a 225 mmBtu/hr boiler that commenced construction, modification, or reconstruction after June 19, 1984. B-3701 combusts site-produced refinery fuel gas ("byproduct/waste" gas) and site-produced or purchased propane and/or butane and as such is subject to the nitrogen oxide (NO_x)[3] emission limit specified in 40 CFR Part 60, Subpart Db and the sulfur dioxide (SO_2) emission limit specified in 40 CFR Part 60, Subpart J. Consistent with 40 CFR Part 60, Subpart J §60.105(a)(4), LBR has elected to install an instrument for continuously monitoring and recording the concentration (dry basis) of hydrogen sulfide (H_2S) in fuel gas at common fuel source locations in lieu of installing a stack SO_2 monitor for B-3701.

B-3701 is also subject to a CO limit specified in Appendix H of Consent Decree #1443032. The consent decree requires an annual performance test for CO. If the CO emissions during the annual performance test exceed the numeric limit established in the consent decree, then an additional testing for Volatile Organic Compounds (VOCs) will be performed.

2.3 Reference Method Sampling Location

The CEMS monitoring and stack testing locations (as well as other pertinent, descriptive information) for B-3701 are described in Table 3. Appendix 1 of this test plan contains the stack diagrams and dimensions for B-3701. All stack dimensions will be verified for completeness and accuracy at the time of testing.

The RM location and CEMS location are at least two equivalent diameters downstream from the point at which pollutant concentration changes occur and at least a half equivalent diameter upstream from the effluent exhaust.

[3] Since B-3701 does not combust coal, oil, wood, or solid waste, the particulate matter standards of §60.43b do not apply.

Table 3: Stack Testing Locations – B-3701

Test Location	Stack Exit Height (feet)	Test Port Height (feet)	Downstream (feet)	Upstream (feet)	Stack ID (feet)
Stack CEMS & RM	98	72.3	39.4	25.7	5

2.4 Source CEMS Description

LBR has installed NO_x and O_2 CEMS to comply with the monitoring requirements of 40 CFR Part 60, Subpart Db on the stack serving B-3701. Table 4 provides the monitor location, manufacturer, model, serial number, and span of each CEMS for B-3701.

Table 4: CEMS Monitor Information – B-3701

Monitor	Location	Manufacturer/Model	Serial Number	Span
NO_x	Stack	Thermo Environmental Instruments 42i	0928238200	500 ppm
O_2	Stack	Servomex 4900	100291	25%

The NO_x and O_2 emissions will be measured at the B-3701 stack using a straight (dry)-extractive sampling system. The straight extractive monitoring system withdraws a sample from the stack through a single port extraction sample probe and into a moisture removal system (which can either be at the sampling location or in the CEMS shelter near the base of the stack). Once the moisture is removed, the dry sample is transported to the monitor(s) which are located in an environmentally-controlled shelter. The NO_x and O_2 monitors will each be configured as single-range monitors. The range of the NO_x monitor was established consistent with the requirements of §60.48b(e)(2)(i) of 40 CFR Part 60, Subpart Db.

The NO_x and O_2 CEMS were installed on the stack serving B-3701. The stack measurement location was selected at an accessible location where the measurements are directly representative of the emissions from B-3701. Consistent with the recommendations of §8.1.2 of 40 CFR Part 60, Appendix B, PS-2, the CEMS measurement location is at least 2 equivalent diameters downstream from the nearest control device, point of pollutant generation or other point at which a change in the pollutant concentration is likely to occur and at least a half equivalent diameter upstream from the effluent exhaust.

2.5 Applicable Performance Specifications

LBR conducted the installation of the CEMS and intends to conduct an initial certification of the CEMS in accordance with the manufacturers' recommendations as well as the applicable Performance Specifications (PS) of 40 CFR Part 60 Appendix B. Table 5 summarizes the applicable PS for each CEMS.

Table 5: Performance Specifications

Parameter	Location	Performance Specification
NO_x	Stack	PS-2
O_2	Stack	PS-3

3.0 CEMS CERTIFICATION TEST PROCEDURES

This section includes a discussion of the certification test procedures and test methods that will be used for performing the gaseous CEMS certification test procedures, including the relative accuracy test audit (RATA) test methods. The CEMS will be certified in accordance with 40 CFR Part 60, Appendix B, Performance Specifications (PS) 2 and 3. Unless stated otherwise, all stack sampling will be performed in accordance with the applicable test methods as described herein. Any deviations from the standard procedures are clearly noted in the following subsections. The following reference methods will or may be utilized during the test program:

- Reference Method 3A Determination of O_2 and CO_2 (Instrumental Procedure)
- Reference Method 7E Determination of NO_x (Instrumental Procedure)

All RM analyzers used during this test program will be those models using the analysis techniques typically seen in industry on these types of sources.

Since the NO_x and O_2 reference method testing is used to certify a CEMS system, the sample site selection and traverse point layout procedures described in 40 CFR Part 60, Appendix B, PS-2 §8.1.3 will be followed. A three (3) point traverse will be performed along a single "long" measurement line at 16.7, 50.0, and 83.7 percent of the stack inside diameter.

3.1 CEMS Certification Tests

LBR installed each CEMS according to the manufacturers recommendations and industry standard practices. After re-start of the affected source, LBR will conduct CEMS certification testing in accordance with the applicable performance specifications.

Descriptions of the certification test procedures to be used are presented in the subsections below. The two primary tests to be performed on each monitor are:

1. The 7-day calibration drift test, and
2. The relative accuracy test audit (RATA)

Data recorded by the CEMS may not be used to assess compliance or monitor availability until both certification tests are successfully completed.

3.1.1 7-Day Calibration Error Test

For the CEMS certification, a 7-day calibration drift test will be performed on the stack NO_x and O_2 monitors in accordance with the procedures specified by 40 CFR Part 60, Appendix B, PS-2, §8.3. The test measures each instrument's daily calibration error during seven consecutive unit operating days. The magnitude of the calibration drift is quantified at approximately 24-hour intervals but is evaluated during seven consecutive unit operating days, not necessarily consecutive calendar days.

The 7-day calibration drift test will challenge each monitor once per day at each of two calibration levels while the monitors are operating in their normal sampling modes. The reference gases need not be certified consistent with §7.1 of PS-2. Table 6 provides the acceptable calibration levels for each of the B-3701 stack CEMS.

No manual or automatic adjustments (i.e., resetting the calibration) will be made to the monitors either prior to or during each of the seven daily calibration error checks. Manual or automatic adjustment to the monitor setting are permitted, however, provided that they are made after taking measurements at both the zero and span-level concentration for that day. If automatic adjustments are made by the monitor, the test will be performed in a manner that will determine and record the extent of the adjustments. The calibration gas will be injected such that it passes through all filters, scrubbers, conditioners, and other monitor components used during normal sampling, and through as much of the sampling probe as practical.

The 7-day calibration drift test results are acceptable if the test results are less than or equal to the levels specified in Table 6 for each monitor. For the NO_x monitor, the calibration drift is calculated as a percentage of the instrument span as follows:

$$CD = \left|\frac{C - M}{S}\right| \times 100$$

Where:
- CD = Percentage calibration drift based upon instrument span (%)
- C = Reference value of zero- or upscale-level calibration gas
- M = Actual monitoring system response to the calibration gas
- S = Span of the instrument

For the O_2 monitor, the calibration drift is calculated as the absolute value of the mean difference between the reference value and the actual monitoring system response. For the NO_x and O_2 monitors, the calibration drift on each of the seven days must be less than or equal to the levels specified in Table 6.

Table 6: 7-Day Calibration Drift Performance Specifications

Parameter	Location	Span	Zero-Level	Span-Level	Criteria
NO_x	Stack	500 ppm	0-100 ppm	250-500 ppm	≤2.5% (Each day)
O_2	Stack	25%	0-5% O_2	12.5-25% O_2	±0.5 % O_2 (Each Day)

3.1.2 Relative Accuracy Test Audit

To satisfy the RATA requirements for the NO_x CEMS and O_2 measurements, the relative accuracy of a minimum nine-run performance test must be less than or equal to 20% of the mean value of the reference data or less than or equal to 10% of the applicable emission standard for the NO_x CEMS. The NO_x emission standard for B-3701 is 0.20 pound per million British thermal units (lb/mmBtu).

If the average NO_x lb/mmBtu reference method value during the RATA is less than 50% of the emission standard, an alternative relative accuracy will be calculated using the appropriate emission standard value as the basis rather than the average reference method value during the RATA.

The relative accuracy will be calculated using the results of a minimum of nine test runs and one of the following equations:

$$RA = \frac{\left|\bar{d}\right| + \left|CC\right|}{RM} \; or \; \frac{\left|\bar{d}\right| + \left|CC\right|}{ES}$$

Where:

RA = Relative accuracy

d = Mean absolute value of the differences between the CERM and reference method values

CC = Absolute value of the 2.5% error confidence coefficient
RM = Average reference method value (≥ 50% of equivalent emission standard)
ES = Equivalent emission standard (< 50% of equivalent emission standard)

A minimum of nine 21-minute comparative test runs will be performed for the RATA. During each sample run, a 3-point traverse will be conducted (see Appendix 1 for traverse point locations). A sample will be extracted from the stack effluent through a sample probe, sample conditioning system and sample line to a distribution manifold where a portion of the sample gas will be dispersed to each pollutant and diluent analyzer.

The NO_x CEMS RATA results will be determined on a mass emission rate (i.e., lb/mmBtu) basis. The mass emission rate will be calculated as follows:

$$E_{nox} = ppm_d \times F_d \times K \times \left(\frac{20.9}{20.9 - \%O_{2d}}\right)$$

Where: E_{nox} = Pollutant mass emission rate, lb/mmBtu
ppm_d = Average pollutant concentration on a dry basis
F_d = Dry basis fuel factor (scf/mmBtu)
K = ppm-to-lb/scf conversion factor
$\%O_{2d}$ = Diluent concentration on a dry basis

Table 7: Summary of Pollutant Conversion Factors

Component	Conversion Factor (ppm to lb/scf)
NO_x	l.194e-7

Conversion to lb/mmBtu will be accomplished utilizing appropriate "F factors" (ratios of combustion gas volumes to heat inputs) determined by either fuel analysis consistent with RM 19 (for fuel gas) or standard F factors (for propane or butane combustion). The F factor will be determined using Equation 19-13 of Reference Method 19. On-site analysis of fuel gas samples will be performed using ASTM D-1945 / UOP 539 and ASTM D-6667-01.

4.0 PERFORMANCE TESTING

This section includes a discussion of the test methods that will be used for performing required performance testing. Unless stated otherwise, all stack sampling will be performed in accordance with the applicable test methods as described herein. Any deviations from the standard procedures are clearly noted in the following subsections. The following reference methods will or may be utilized during the performance test program:

- Reference Method 10 Determination of CO (Instrumental Procedure)

All RM analyzers used during this test program will be those models using the analysis techniques typically seen in industry on these types of sources.

4.1 CO Performance Test

A CO performance test will be performed on the stack serving B-3701 in accordance with Appendix H of Consent Decree #1443032. LBR intends to hire an outside testing contractor to conduct the RM test runs using RM 10. The performance test will consist of three (3) one-hour test runs. If the average of the three one-hour samples is in excess of the limit (0.070 lb/mmBtu) specified in Appendix H of Consent Decree #1443032, LBR will be required to conduct an additional test for Volatile Organic Compounds (VOCs) using either Reference Method 25 or 25A.

The measurements will be made while the source operates under conditions that are representative of normal operations[4]. The test will not be conducted during periods of startup, shutdown, or malfunction. The test will be performed combusting site-produced fuel gas, purchased propane, or a combination thereof.

All pre-test and on-site field checks of the RM CEMS as well as all measurements made throughout the testing will be conducted according to procedures specified in the applicable EPA methods, the quality assurance procedures detailed in EPA's Quality Assurance Handbook for Air Pollution Measurement Systems: Volume III – Stationary Source-Specific Methods (EPA/600/R-94/038c), or EPA guidance documents.

[4] In general, the test will be performed at or above 90% of maximum capacity of the source or at the maximum achievable rate on the day of testing.

Since the CO performance test is used to determine compliance with an emission standard, the sample site selection and traverse point layout procedures described in 40 CFR Part 60, Appendix A, RM7E §8.1.2 (as referenced in RM-10) will be followed. A three (3) point traverse will be performed along a single "long" measurement line at 16.7, 50.0, and 83.7 percent of the stack inside diameter. If the concentration at each traverse point differs from the mean concentration for all traverse points by no more than ±5.0% of the mean concentration or ±0.5 ppm (whichever is less restrictive), the reference method test runs may be conducted at a single point that most closely matches the mean. If the concentration at each traverse point differs from the mean concentration for all traverse points by no more than ±10.0% of the mean concentration or ±1.0 ppm (whichever is less restrictive), the reference method test runs may continue to be conducted along the "long" measurement line at 16.7, 50.0, and 83.7 percent of the stack inside diameter. If the concentration at each traverse point differs from the mean concentration for all traverse points by more than ±10.0% of the mean concentration or ±1.0 ppm, the gas stream is considered stratified and each reference method test run must be conducted at 12 traverse points in accordance with Table 1-1 of RM 1 (See Appendix 1).

The RM analyzer measurements will be recorded as both 1- and 60-minute averages either manually or on the test team's data acquisition and handling system (DAHS). All test run concentration results will be determined from the average gas concentrations measured during the run and adjusted based upon the zero and upscale sampling system bias check results (per Equation 7E-5 presented in Method 7E, §12.6). The emission rate (in lb/mmBtu) will be calculated for each test run using Equation 19-1 or 19-6 presented in Method 19 utilizing appropriate "F factors" (ratios of combustion gas volumes to heat inputs) determined by either fuel analysis consistent with RM 19 (for fuel gas) or standard F factors (for propane or butane combustion). The final CO emission rate will be calculated as the arithmetic average of the three test runs.

4.2 NO_x Performance Test

A NO_x performance test will be performed on the stack serving B-3701 in accordance with 40 CFR Subpart Db. Consistent with §60.46b(e), LBR will monitor the NO_x from B-3701 using the certified CEMS. The emissions will be monitored for 30 successive steam generating unit

operating days following the CEMS certification testing. The 30-day average emission rate calculated as the average of all valid hourly emissions data recorded by the monitoring system during the 30-day test period will be used to demonstrate compliance with the NO_x emission limit of 0.20 lb/mmBtu.

5.0 PROCESS DATA

5.1 CEMS RATA

During the RATA, all data will be electronically logged and printed out by the DAHS. In order to appropriately calculate and report the CEMS RATA data, the following process data will be provided by the plant, either manually or by the plant's DAHS: (1) date, (2) time, (3) source, (4) operating load, (5) fuel fired/rate, (6) NO_x ppm, (7) O_2 % and (8) NO_x lb/mmBtu. All testing will be performed while the boiler operates at a normal (i.e., > 50% of capacity) production rate under normal process conditions.

5.2 CO Performance Test

In order to appropriately report the performance test data, the following process data will be provided by the plant, either manually or by the plant's DAHS: (1) date, (2) time, (3) source, (4) operating load and (5) fuel fired/rate.

5.3 NO_x Performance Test

In order to appropriately report the Subpart Db, a summary report will be prepared meeting or exceeding the requirements of §40.49b(g) will be provided by the plant, either manually or by the plant's DAHS: (1) date, (2) average hourly NO_x rate (lb/MMBtu), (3) 30-day average NO_x emission rate, (4) identification of steam generating unit operating days for which the 30-day average NO_x emission rate is in excess of the NO_x emissions standards, (5) identification of steam generating unit operating days for which pollutant data have not been obtained, (6) identification of the times when emission data have been excluded from the calculation of average emission rates, (7) identification of the "F" factor used for calculations, method of determination, and type of fuel combusted, (8) identification of the times when the pollutant concentration exceeded the full span of the CEMS, (9) description of any modifications to the CEMS that could affect the ability of the CEMS to comply with PS-2 or 3, and (10) the results of daily CEMS drift tests and quarterly assessments as required under Part 60, Appendix F, Procedure 1.

6.0 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

The previously described reference methods are very technique oriented. Attempts to minimize any and all factors which can increase test measurement error are performed by implementing a Quality Assurance Program (and their associated procedures) into every segment of the testing activities. The following sections detail all QA/QC procedures to be followed during the test program.

6.1 Sampling Equipment Calibrations

All of the emission testing equipment used will be calibrated according to the procedures outlined in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, EPA-600/4-77-207b.

6.2 Calibration Gases

All calibration gases used during the test program will be EPA Protocol provided by reputable calibration gas vendors. No calibration gas cylinders will be used that have reached or exceeded their expiration date(s), nor will they be used if they contain less than 100 psi of gas. Copies of the calibration gas "certificates of analysis" can be made available on-site during the test program and will be provided in the final test report.

7.0 TEST REPORTS

7.1 CEMS Certification Test Report

Upon completion of the test program, a preliminary (draft final) report will be provided to LBR's Environmental Department – Air Group for internal review prior to submitting the final report(s).

The final test report(s) will include the following:

- All certification test results and calculations
- Field test data (produced by RM and facility, where applicable) of the following:
    1. 7-day calibration drift test
    2. RATA
- Source process data
- RM calibration data
- RM QA check results
- Stack information (dimensions and process/data flow diagrams)
- Calibration gas values (RM)
- Calibration gas certificates of analysis (RM)
- Narrative discussion of the test program (including test method procedures)

40 CFR Part 60 §60.13(c)(2) requires that the CEMS certification report be submitted **within 60 days** of the completion of the certification testing.

7.2 CO Performance Test

Upon completion of the performance test program, a preliminary (draft final) report will be provided to LBR's Environmental Department – Air Group for internal review prior to submitting the final report(s).

The final test report(s) will include the following:

- All performance test results and calculations
- Field test data (produced by RM and facility, where applicable) of the following
- Source process data
- RM calibration data
- RM QA check results

- Stack information (dimensions and process/data flow diagrams)
- RM calibration gas values
- RM calibration gas certificates of analysis
- Narrative discussion of the test program (including test method procedures)

Though not specified by the Consent Decree or permit conditions requiring CO emissions testing, LBR intends to submit the performance test report **within 60 days** of the completion of the performance testing.

7.3 NO_x Performance Test

Upon completion of the 30-steam generating unit operating day test program, LBR will submit the performance test summary data to **within 60 days** of the completion of the 30-steam generating unit operating day test program.

APPENDIX 1

Sample Location Dimensions & Traverse Point Determinations

Client:	**Limetree Bay**
Unit Tested:	**B-3701**
Sampling Location:	**Stack**
Stack Diameter:	**60.00** inches
Nipple Length:	**3.00** inches
Number of Test Ports:	**4.00**
# of Traverse Points:	**12.00**

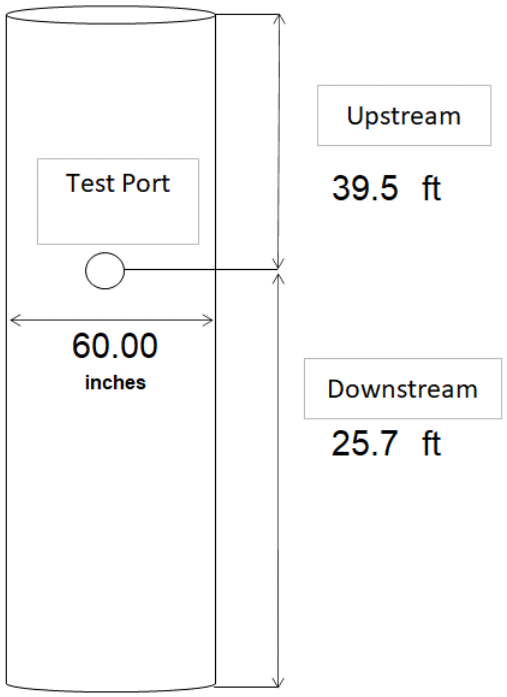
Distance from Nearest Disturbance:

Upstream:	**39.5** ft
Downstream:	**25.7** ft

CO Performance Test Traverse Point Options

Two Ports	12-point	3-Point (Single Port)
Point 1	5.75	13.00
Point 2	11.75	33.00
Point 3	20.75	53.00
Point 4	45.25	
Point 5	54.25	
Point 6	60.25	

NOx/O2 RATA Traverse	% of Diameter	3-Point
	16.7%	13.00
	50.0%	33.00
	83.3%	53.00



Limetree Bay Refining Operating, LLC
#8 & #9 Boiler Common Stack
(B-3303 & B-3304)
Compliance Test Plan
40 CFR Part 60

Anticipated Test Dates: August 2020

For

Limetree Bay Refining Operating, LLC
#1 Estate Hope
Christiansted, VI 00820

Prepared by:

RTP Environmental Associates, Inc.
304-A Millbrook Road
Raleigh, NC 27609

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1.0 INTRODUCTION

Limetree Bay Terminals, LLC / Limetree Bay Refining Operating, LLC (LBR) is in receipt of Construction Permit STX-924-AC-18 issued by the U.S. Virgin Islands Department of Planning and Natural Resources (VI DPNR). Construction Permit STX-924-AC-18 permits the modification of certain process units in order to resume refining operations at the LBR refinery which were idled under previous ownership in 2011 and 2012. Consistent with the permit application, LBR shall continue to comply with the applicable regulatory requirements as defined in Title V Permit No. STX-TV-003-10 for all emission units affected but not modified by the construction project (the "MARPOL" project). A revised Title V Permit application was submitted on July 17, 2019. At the time of preparation and submittal of this test plan, a final revision of Title V permit has not been received. . LBR is also in receipt of the First Modification of the facility Consent Decree (Civ. No. 1:11-cv-00006), hereafter referred to as the facility Consent Decree.

LBR has prepared the following compliance test plan to meet the notification requirements for required performance test(s) and the continuous emissions monitoring system (CEMS) performance evaluation test(s) ("CEMS certification test") as set forth by the Environmental Protection Agency (EPA) in Title 40 of the Code of Federal Regulations Part 60 (40 CFR Part 60) §60.7(a)(5), Title V Permit No. STX-TV-003-10, and the Virgin Islands Air Code (CVIR 12-009-000) Section 206-25(b). This compliance plan discusses the stack CEMS certification testing as well as the performance testing that will take place upon re-start of #8 & #9 Boilers (Source ID B-3303 & B-3304 Common Stack).

The gaseous CEMS measure the mass emissions of NO_x in units of pounds per million British thermal units (lb/mmBtu). This test plan outlines the procedures to be followed, the test methods to be used, and any requested deviations from either the specific conditions or limitations as listed in Air Permit No. STX-TV-003-10, or from the test methods themselves. Table 1 provides a summary of the relative accuracy criteria for each component being assessed as part of the RATA.

Table 1: Relative Accuracy Criteria

Parameter	Units	Relative Accuracy Specification	
		RM Mean ≥50% of Emission Standard	RM Mean <50% of Emission Standard
NO_x	lb/mmBtu	20% of RM Mean	10% of Emission Standard
Diluent CEMS		**Primary Criteria**	**Alternative Criteria**
O_2	%d	20% of RM Mean	±1.0% Absolute Difference

Mostardi-Platt is anticipated to perform the EPA reference method (RM) testing for this test project and provide the written report summarizing the results of the test program. Overall project oversight and test protocol development will be provided by RTP Environmental Associates (RTP). Table 2 contains the contact information for all relevant parties.

Table 2: Test Program Contact List

Contact	Company	Address	Phone/Email
Ms. Maria Aloyo	LBR	1 Estate Hope Christiansted, VI 00820-5652	340-692-3781 MAloyo@lbenergy.com
Mr. Stuart Burton	Mostardi-Platt	888 Industrial Drive Elmhurst, IL	630-993-2100 SBurton@mp-mail.com
Ms. Bethany White	RTP	304A West Millbrook Rd. Raleigh, NC 27609	919-578-4876 bwhite@rtpenv.com

The test program is scheduled to begin no sooner than August 21, 2020. A specific test schedule will be determined based on the operating status of the various units to be tested at the facility during the test program. A specific test schedule will be provided to the Administrator upon request.

Appendix 1 contains Reference Method (RM) 1 site location information for B-3303 & B-3304 Common Stack, sample traverse points for the RM 3A and 7E for each test run.

1.1 TIMING OF TESTS

An initial performance test demonstrating compliance with the NO_x emission standard of NSPS Subpart D will be performed as required by §60.46(b). The initial performance test will be conducted in conjunction with the NO_x RATA for the source. An initial visible emissions performance test will be conducted as required by §60.45(b)(7). Consistent with Appendix L of the draft Consent Decree, the demonstration of compliance will be achieved not later than 60 days after achieving the maximum production rate of the boilers or not later than 180 days after

initial restart, whichever comes first. For a fuel gas combustion device, restart is resumption of operation while combusting fuel gas.

The monitoring requirements of Subpart D were applicable but were on a delayed compliance schedule prior to source idling. As such, CEMS certification tests were not previously conducted in accordance with 40 CFR Subpart A §60.13(b). Consistent with Appendix L of the draft Consent Decree, LBR will conduct CEMS certification tests 60 days after achieving the maximum production rate of the boilers or not later than 180 days after initial restart, whichever comes first. For a fuel gas combustion device, restart is resumption of operation while combusting fuel gas.

The CEMS certification test may be performed while combusting site-produced fuel gas, purchased propane, or a combination thereof. The certification of the H_2S CEMS which measures the common source of fuel gas for B-3303 and B-3304 will not be conducted until site-produced fuel gas is available for combustion[1]. A separate notification will be prepared to summarize the H_2S CEMS certification tests.

[1] Until such time that site-produced fuel gas is combusted, B-3303 & B-3304 are not fuel gas combustion devices as defined 40 CFR Subpart J §60.101 and is not subject to the H_2S monitoring requirements of 40 CFR Subpart J §60.105(a)(4).

2.0 FACILITY DESCRIPTION

2.1 Facility Location

The LBR facility is located at 1 Estate Hope in Christiansted, St. Croix, Virgin Islands.

2.2 Source Descriptions

B-3303 and B3304 are fossil-fuel fired boilers that commenced construction, modification, or reconstruction after August 17, 1971 and as such are subject to the requirements of NSPS Subpart D. Since both boilers combust only gaseous fuels with potential SO_2 emission rates of 26 ng/J (0.060 lb/MMBtu) or less and do not use post-combusting technology to reduce emissions of SO_2 or PM, the boilers are exempt from the PM standards specified in §60.42(a). Likewise, since both boilers combust only gaseous fuels, they are exempt from the SO_2 standards specified in §40.43(a). Both boilers are subject to the nitrogen oxide (NO_x) emission limit specified in §60.44(a)(1) and the periodic visible emission testing requirements specified in §60.45(b)(7) of 40 CFR Part 60, Subpart D.

The boilers are also subject to the sulfur dioxide (SO_2) emission limit specified in 40 CFR Part 60, Subpart J. Consistent with 40 CFR Part 60, Subpart J §60.105(a)(4), LBR has elected to install an instrument for continuously monitoring and recording the concentration (dry basis) of hydrogen sulfide (H_2S) in fuel gas at common fuel source locations in lieu of installing a stack SO_2 monitor.

2.3 Reference Method Sampling Location

The CEMS monitoring and stack testing locations (as well as other pertinent, descriptive information) for B-3303 & B-3304 Common Stack are described in Table 3. Consistent with §60.13(g), LBR has elected to install the applicable continuous monitoring systems on the combined effluent from the boilers. Likewise, LBR intends to conduct reference method testing at the combined effluent location.

Appendix 1 of this test plan contains the stack diagrams and dimensions for B-3303 & B-3304 Common Stack. All stack dimensions will be verified for completeness and accuracy at the time of testing.

The RM location and CEMS location are at least two equivalent diameters downstream from the point at which pollutant concentration changes occur and at least a half equivalent diameter upstream from the effluent exhaust.

Table 3: Stack Testing Locations – B-33303 & B-3304 Common Stack

Test Location	Stack Exit Height (feet)	Test Port Height (feet)	Downstream (feet)	Upstream (feet)	Stack ID (feet)
Stack CEMS & RM	195	166	64	29	13

2.4 Source CEMS Description

LBR has installed NO_x and O_2 CEMS to comply with the monitoring requirements of 40 CFR Part 60, Subpart D on the stack serving B-3303 & B-3304 Common Stack. Table 4 provides the monitor location, manufacturer, model, serial number, and span of each CEMS for B-3303 & B-3304 Common Stack.

Table 4: CEMS Monitor Information – B-3303 & B-3304 Common Stack

Monitor	Location	Manufacturer/Model	Serial Number	Span
NO_x	Stack	Thermo Environmental Instruments 42iQL	1191032547	500 ppm
O_2	Stack	Servomex 4900	100289	25%

The NO_x and O_2 emissions will be measured at the B-3303 & B-3304 Common Stack using a straight (dry)-extractive sampling system. The straight extractive monitoring system withdraws a sample from the stack through a single port extraction sample probe and into a moisture removal system (which can either be at the sampling location or in the CEMS shelter near the base of the stack). Once the moisture is removed, the dry sample is transported to the monitor(s) which are located in an environmentally-controlled shelter. The NO_x and O_2 monitors will each be configured as single-range monitors. The range of the NO_x monitor was established consistent with the requirements of §60.45(c)(3)(i) of 40 CFR Part 60, Subpart D. The NO_x and O_2 CEMS were installed on the stack serving both B-3303 & B-3304. The stack measurement location was selected at an accessible location where the measurements are directly representative of the combined emissions from units B-3303 & B-3304. Consistent with the recommendations of §8.1.2 of 40 CFR Part 60, Appendix B, PS-2, the CEMS measurement

location is at least 2 equivalent diameters downstream from the nearest control device, point of pollutant generation or other point at which a change in the pollutant concentration is likely to occur and at least a half equivalent diameter upstream from the effluent exhaust.

2.5 Applicable Performance Specifications

LBR conducted the installation of the CEMS and intends to conduct an initial certification of the CEMS in accordance with the manufacturers' recommendations as well as the applicable Performance Specifications (PS) of 40 CFR Part 60 Appendix B. Table 5 summarizes the applicable PS for each CEMS.

Table 5: Performance Specifications

Parameter	Location	Performance Specification
NO_x	Stack	PS-2
O_2	Stack	PS-3

3.0 CEMS CERTIFICATION TEST PROCEDURES

This section includes a discussion of the certification test procedures and test methods that will be used for performing the gaseous CEMS certification test procedures, including the relative accuracy test audit (RATA) test methods. The CEMS will be certified in accordance with 40 CFR Part 60, Appendix B, Performance Specifications (PS) 2 and 3. Unless stated otherwise, all stack sampling will be performed in accordance with the applicable test methods as described herein. Any deviations from the standard procedures are clearly noted in the following subsections. The following reference methods will or may be utilized during the test program:

- Reference Method 3A Determination of O_2 and CO_2 (Instrumental Procedure)
- Reference Method 7E Determination of NO_x (Instrumental Procedure)

All RM analyzers used during this test program will be those models using the analysis techniques typically seen in industry on these types of sources.

Since the NO_x and O_2 reference method testing is used to certify a CEMS system, the sample site selection and traverse point layout procedures described in 40 CFR Part 60, Appendix B, PS-2 §8.1.3 will be followed. A three (3) point traverse will be performed along a single "long" measurement line at 16.7, 50.0, and 83.7 percent of the stack inside diameter unless a 12-point stratification test is conducted first to demonstrate the acceptable use of a "short" measurement line at 0.4, 1.2, and 2.0 meters from the stack wall.

3.1 CEMS Certification Tests

LBR installed each CEMS according to the manufacturers recommendations and industry standard practices. After re-start of the affected source, LBR will conduct CEMS certification testing in accordance with the applicable performance specifications.

Descriptions of the certification test procedures to be used are presented in the subsections below. The two primary tests to be performed on each monitor are:

1. The 7-day calibration drift test, and
2. The relative accuracy test audit (RATA)

Data recorded by the CEMS may not be used to assess compliance or monitor availability until both certification tests are successfully completed.

3.1.1 7-Day Calibration Error Test

For the CEMS certification, a 7-day calibration drift test will be performed on the stack NO_x and O_2 monitors in accordance with the procedures specified by 40 CFR Part 60, Appendix B, PS-2, §8.3. The test measures each instrument's daily calibration error during seven consecutive unit operating days. The magnitude of the calibration drift is quantified at approximately 24-hour intervals but is evaluated during seven consecutive unit operating days, not necessarily consecutive calendar days.

The 7-day calibration drift test will challenge each monitor once per day at each of two calibration levels while the monitors are operating in their normal sampling modes. The reference gases need not be certified consistent with §7.1 of PS-2. Table 6 provides the acceptable calibration levels for the B-3303 & B-3304 Common Stack CEMS.

No manual or automatic adjustments (i.e., resetting the calibration) will be made to the monitors either prior to or during each of the seven daily calibration error checks. Manual or automatic adjustment to the monitor setting are permitted, however, provided that they are made after taking measurements at both the zero and span-level concentration for that day. If automatic adjustments are made by the monitor, the test will be performed in a manner that will determine and record the extent of the adjustments. The calibration gas will be injected such that it passes through all filters, scrubbers, conditioners, and other monitor components used during normal sampling, and through as much of the sampling probe as practical.

The 7-day calibration drift test results are acceptable if the test results are less than or equal to the levels specified in Table 6 for each monitor. For the NO_x monitor, the calibration drift is calculated as a percentage of the instrument span as follows:

$$CD = \left|\frac{C - M}{S}\right| \times 100$$

Where: CD = Percentage calibration drift based upon instrument span (%)
C = Reference value of zero- or upscale-level calibration gas

M = Actual monitoring system response to the calibration gas
S = Span of the instrument

For the O_2 monitor, the calibration drift is calculated as the absolute value of the mean difference between the reference value and the actual monitoring system response. For the NO_x and O_2 monitors, the calibration drift on each of the seven days must be less than or equal to the levels specified in Table 6.

Table 6: 7-Day Calibration Drift Performance Specifications

Parameter	Location	Span	Zero-Level	Span-Level	Criteria
NO_x	Stack	500 ppm	0-100 ppm	250-500 ppm	≤2.5% (Each day)
O_2	Stack	25%	0-5% O_2	12.5-25% O_2	±0.5 % O_2 (Each Day)

3.1.2 Relative Accuracy Test Audit

To satisfy the RATA requirements for the NO_x CEMS and O_2 measurements, the relative accuracy of a minimum nine-run performance test must be less than or equal to 20% of the mean value of the reference data or less than or equal to 10% of the applicable emission standard for the NO_x CEMS. The NO_x emission standard for B-3303 & B-3304 Common Stack is 0.20 pound per million British thermal units (lb/mmBtu).

If the average NO_x lb/mmBtu reference method value during the RATA is less than 50% of the emission standard, an alternative relative accuracy will be calculated using the appropriate emission standard value as the basis rather than the average reference method value during the RATA.

The relative accuracy will be calculated using the results of a minimum of nine test runs and one of the following equations:

$$RA = \frac{\left|\bar{d}\right| + \left|CC\right|}{RM} \; or \; \frac{\left|\bar{d}\right| + \left|CC\right|}{ES}$$

Where:

RA = Relative accuracy

d = Mean absolute value of the differences between the CERM and reference method values
CC = Absolute value of the 2.5% error confidence coefficient
RM = Average reference method value (≥ 50% of equivalent emission standard)
ES = Equivalent emission standard (< 50% of equivalent emission standard)

A minimum of nine 21-minute comparative test runs will be performed for the RATA. During each sample run, a 3-point traverse will be conducted (see Appendix 1 for traverse point locations). A sample will be extracted from the stack effluent through a sample probe, sample conditioning system and sample line to a distribution manifold where a portion of the sample gas will be dispersed to each pollutant and diluent analyzer.

The NO_x CEMS RATA results will be determined on a mass emission rate (i.e., lb/mmBtu) basis. The mass emission rate will be calculated as follows:

$$E_{nox} = ppm_d \times F_d \times K \times \left(\frac{20.9}{20.9 - \%O_{2d}}\right)$$

Where: E_{nox} = Pollutant mass emission rate, lb/mmBtu
ppm_d = Average pollutant concentration on a dry basis
F_d = Dry basis fuel factor (scf/mmBtu)
K = ppm-to-lb/scf conversion factor
$\%O_{2d}$ = Diluent concentration on a dry basis

Table 7: Summary of Pollutant Conversion Factors

Component	Conversion Factor (ppm to lb/scf)
NO_x	1.194e-7

Conversion to lb/mmBtu will be accomplished utilizing appropriate "F factors" (ratios of combustion gas volumes to heat inputs) determined by either fuel analysis consistent with RM 19 (for fuel gas) or standard F factors (for propane or butane combustion). The F factor will be determined using Equation 19-13 of Reference Method 19. On-site analysis of fuel gas samples will be performed using ASTM D-1945 / UOP 539 and ASTM D-6667-01.

4.0 PERFORMANCE TESTING

This section includes a discussion of the performance test procedures and test methods that will be used for performing required performance testing for B-3303 & B-3304. Performance testing will be conducted on the combined effluent from the two units. Unless stated otherwise, all stack sampling will be performed in accordance with the applicable test methods as described herein. Any deviations from the standard procedures are clearly noted in the following subsections. The following reference methods will or may be utilized during the test program:

- Reference Method 3A Determination of O_2 and CO_2 (Instrumental Procedure)
- Reference Method 7E Determination of NO_x (Instrumental Procedure)
- Reference Method 9 Determination of Visual Opacity (Certified Observer Procedure)
- Reference Method 19 (Fuel Sampling Calculations Only)

All RM analyzers used during this test program will be those models using the analysis techniques typically seen in industry on these types of sources.

4.1 NO_x Performance Test

A NO_x performance test will be performed on the stack serving B-3303 & B-3304 Common Stack in accordance with 40 CFR Subpart D. Consistent with §60.46(d), LBR will determine the NO_x emissions from B-3303 & B-3304 Common Stack using the RM-7E, RM-3A, and will calculate the emission rate using 60.46(b)(1) for each run. The F factor will be determined using Equation 19-13 of Reference Method 19. On-site analysis of fuel gas samples will be performed using ASTM D-1945 / UOP 539 and ASTM D-6667-01. A minimum of three one-hour runs will be performed and will be averaged to demonstrate compliance with the Subpart D NO_x emission limitation. LBR may elect to use three consecutive RATA test runs (3 x 21 minutes = 63 minutes) in place of a single performance test run.

4.2 Visible Emission Performance Test

A Visible Emissions performance test will be performed by a certified observer on the stack serving B-3303 & B-3304 Common Stack in accordance with 40 CFR Subpart D. Consistent with §60.45(b)(7), LBR will determine the visible emissions from B-3303 & B-3304 Common Stack using the RM-9. The initial observation period will be 60 minutes in duration. If all 6-minute averages are less than 10 percent opacity and all individual 15-second observations are less than or equal to 20 percent, the initial performance test will be considered complete at the

end of 60 minutes. If any 6-minute averages are greater than or equal to 10 percent opacity or any individual 15-second observations are greater than 20 percent, a 3 hour visible emission performance test will be performed. Subsequent visible emissions tests using RM-9 will be conducted in accordance with the schedule detailed in §60.45(b)(7)(i).

5.0 PROCESS DATA

5.1 CEMS RATA

During the RATA, all data will be electronically logged and printed out by the DAHS. In order to appropriately calculate and report the CEMS RATA data, the following process data will be provided by the plant, either manually or by the plant's DAHS: (1) date, (2) time, (3) source, (4) operating load, (5) fuel fired/rate, (6) NO_x ppm, (7) O_2 % and (8) NO_x lb/mmBtu. All testing will be performed while the boiler operates at a normal (i.e., > 50% of capacity) production rate under normal process conditions.

5.2 NO_x Performance Test

During each performance test, the following process data will be provided by the plant, either manually or by the plant's DAHS: (1) date, (2) time, (3) source, (4) operating load, and (5) fuel fired/rate. All testing will be performed while the boiler operates at a normal (i.e., > 50% of capacity) production rate under normal process conditions.

5.3 Visible Emission Performance Test

During each performance test, the following process data will be provided by the plant, either manually or by the plant's DAHS: (1) date, (2) time, (3) source, (4) operating load, and (5) fuel fired/rate. In addition records will be kept including the information specified in §60.45(h)(1): (1) dates and time intervals of all opacity observation periods, (2) name, affiliation, and a copy of current visible emission reading certification for each visible emission observer participating in the performance test, and (3) copies of all visible emission observer opacity field data sheets.

6.0 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

The previously described reference methods are very technique oriented. Attempts to minimize any and all factors which can increase test measurement error are performed by implementing a Quality Assurance Program (and their associated procedures) into every segment of the testing activities. The following sections detail all QA/QC procedures to be followed during the test program.

6.1 Sampling Equipment Calibrations

All of the emission testing equipment used will be calibrated according to the procedures outlined in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, EPA-600/4-77-207b.

6.2 Calibration Gases

All calibration gases used during the test program will be EPA Protocol provided by reputable calibration gas vendors. No calibration gas cylinders will be used that have reached or exceeded their expiration date(s), nor will they be used if they contain less than 100 psi of gas. Copies of the calibration gas "certificates of analysis" can be made available on-site during the test program and will be provided in the final test report.

6.3 Visible Emission Certification

Each individual performing RM-9 visible emissions performance tests must present a current visible emission reading certification.

7.0 TEST REPORTS

7.1 CEMS Certification Test Report

Upon completion of the test program, a preliminary (draft final) report will be provided to LBR's Environmental Department – Air Group for internal review prior to submitting the final report(s).

The final test report(s) will include the following:

- All certification test results and calculations
- Field test data (produced by RM and facility, where applicable) of the following:
    1. 7-day calibration drift test
    2. RATA
- Source process data
- RM calibration data
- RM QA check results
- Stack information (dimensions and process/data flow diagrams)
- Calibration gas values (RM)
- Calibration gas certificates of analysis (RM)
- Narrative discussion of the test program (including test method procedures)

40 CFR Part 60 §60.13(c)(2) requires that the CEMS certification report be submitted **within 60 days** of the completion of the certification testing.

7.2 Performance Test report

Upon completion of the NOx and visible emissions test program, LBR will submit the performance test summary data **within 60 days** of the completion of the performance testing.

APPENDIX 1

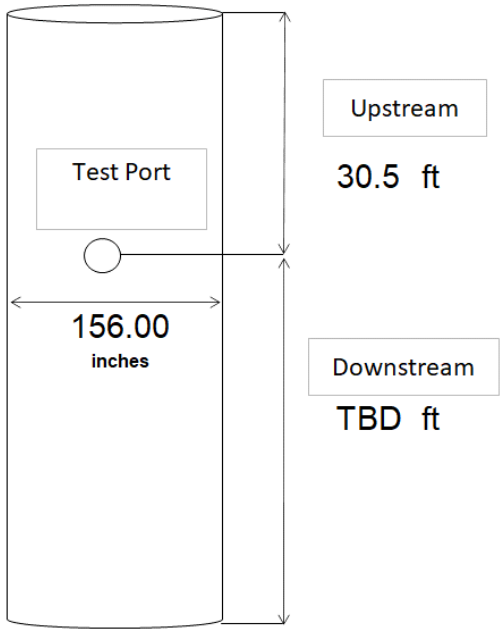
Sample Location Dimensions & Traverse Point Determinations

Client:	**Limetree Bay**
Unit Tested:	**B-3303 & B-3304 Common Stack**
Sampling Location:	**Stack**
Stack Diameter:	**156.00** inches
Nipple Length:	**3.00** inches
Number of Test Ports:	**4.00**

Distance from Nearest Disturbance:

Upstream:	**30.5** ft
Downstream:	**TBD** ft

NOx/O2 RATA Traverse	**% of Diameter**	**3-Point**
	16.7%	29.00
	50.0%	81.00
	83.3%	133.00



Limetree Bay Refining Operating, LLC
Gas Turbine #7 (G-3407)
Compliance Test Plan
40 CFR Part 60

Anticipated Test Dates: August 2020

For

Limetree Bay Refining Operating, LLC
#1 Estate Hope
Christiansted, VI 00820

Prepared by:

RTP Environmental Associates, Inc.
304-A Millbrook Road
Raleigh, NC 27609

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1.0 INTRODUCTION

Limetree Bay Terminals, LLC / Limetree Bay Refining Operating, LLC (LBR) is in receipt of Construction Permit STX-924-AC-18 issued by the U.S. Virgin Islands Department of Planning and Natural Resources (VI DPNR). Construction Permit STX-924-AC-18 permits the modification of certain process units in order to resume refining operations at the LBR refinery which were idled under previous ownership in 2011 and 2012. Consistent with the permit application, LBR shall continue to comply with the applicable regulatory requirements as defined in Title V Permit No. STX-TV-003-10 for all emission units affected but not modified by the construction project (the "MARPOL" project). A revised Title V Permit application was submitted on July 17, 2019. At the time of preparation and submittal of this test plan, a final revision of Title V permit has not been received. LBR is also in receipt of the First Modification of the facility Consent Decree (Civ. No. 1:11-cv-00006), hereafter referred to as the facility Consent Decree.

The facility Consent Decree that limits the operation of certain gas turbines until such time that LBR can demonstrate full compliance with NSPS Subparts A and GG. LBR is currently limited to operating G-3407 at a maximum load (based on a 1-hour block average) of 14.53 MW when combusting propane gas and 12.97 MW when combusting fuel oil or fuel gas. In order to operate the unit above these maximum load limits, LBR must demonstrate the ability to operate without exceeding the emission limitations of NSPS Subpart GG. LBR has prepared the following compliance test plan to meet the notification requirements for required performance test(s) as set forth by the Environmental Protection Agency (EPA) in Title 40 of the Code of Federal Regulations Part 60 (40 CFR Part 60) §60.8(d), Title V Permit No. STX-TV-003-10, the Virgin Islands Air Code (CVIR 12-009-000) Section 206-25(b), and Consent Decree testing notification requirements found in Condition 136.d.ii.v.(3). This compliance plan discusses the performance testing that will take place for GT-7 (Source ID G-3407) in order to establish a subsequent Maximum Load Limit consistent with Subparagraph 136.d.iv of the draft revised Consent Decree.

Performance testing for NO_x emissions will be performed in accordance with the procedures specified in 40 CFR Part 60, Subpart GG. Mostardi-Platt is anticipated to perform the EPA reference method (RM) testing for this test project and provide the written report summarizing

the results of the test program. Overall project oversight and test protocol development will be provided by RTP Environmental Associates (RTP). Table 1 contains the contact information for all relevant parties.

Table 1: Test Program Contact List

Contact	Company	Address	Phone/Email
Ms. Maria Aloyo	LBR	1 Estate Hope Christiansted, VI 00820-5652	340-692-3781 MAloyo@lbenergy.com
Mr. Stuart Burton	Mostardi-Platt	888 Industrial Drive Elmhurst, IL	630-993-2100 SBurton@mp-mail.com
Ms. Bethany White	RTP	304A West Millbrook Rd. Raleigh, NC 27609	919-578-4876 bwhite@rtpenv.com

The test program is scheduled to begin no sooner than August 21, 2020. A specific test schedule will be determined based on the operating status of the various units to be tested at the facility during the test program and will be provided to the Administrator upon request.

Appendix 1 contains Reference Method (RM) 1 site location information for G-3407, sample traverse points for the RM 3A and 7E test methods.

1.1 TIMING OF TESTS

Performance tests demonstrating compliance with the NO_x emission standard in NSPS Subpart GG and in Title V Permit STX-TV-003-10 were conducted under reduced-load conditions in 2016 and 2018. Subsequent NO_x performance testing following the procedures in NSPS Subpart GG and in Title V Permit STX-TV-003-10 will be performed at four (4) defined operating loads and two (2) fuel conditions as necessary to establish a new Maximum Load Limit consistent with Consent Decree requirements.

2.0 FACILITY DESCRIPTION

2.1 Facility Location

The LBR facility is located at 1 Estate Hope in Christiansted, St. Croix, Virgin Islands.

2.2 Source Descriptions

G-3407 is a 290.4 mmBtu/hr combined cycle gas turbine that commenced construction, modification, or reconstruction after October 3, 1977. G-3407 combusts site-produced gaseous fuel and/or purchased propane, butane or fuel oil. G-3407 is subject to the nitrogen oxide (NO_x) emission limit and sulfur dioxide (SO_2) fuel sampling procedures specified in 40 CFR Part 60, Subpart GG.

2.3 Reference Method Sampling Location

The stack testing locations (as well as other pertinent, descriptive information) for G-3407 are described in Table 2. Appendix 1 of this test plan contains the stack diagrams and dimensions for G-3407. All stack dimensions will be verified for completeness and accuracy at the time of testing.

Table 2: Stack Testing Locations – G-3407

Test Location	Stack Exit Height (feet)	Test Port Height (feet)	Flow Disturbances		Stack ID (feet)
			Upstream (feet)	Downstream (feet)	
Stack	52	47.4	4.6	10	10.33 x 8.17

3.0 Subpart GG Performance Testing

3.1 NO_x Stratification Testing

Prior to the start or a part of the first test run for the initial load-level, a 12-point stratification test will be performed using the procedures outlined Section 6.5.6.1(a) of Appendix A of 40 CFR Part 75[1]. The calculation of stratification criteria will be based on NO_x concentrations corrected to 15% O_2. Based on the results of the stratification testing, the number and location of traverse points for the NO_x performance test are defined below:

- If the NO_x concentration corrected to 15% O_2 at each traverse point is within 5% of the mean NO_x concentration corrected to 15% O_2 for all 12 traverse points, then the sampling may be performed at a single sampling point located at least 1-meter from the interior stack wall or within centroid of the stack.

- If the NO_x concentration corrected to 15% O_2 at each traverse point is within 10% of the mean NO_x concentration corrected to 15% O_2 for all 12 traverse points, then the sampling may be performed at three (3) sampling points located at 16.7, 50.0 and 83.3 percent of the depth of the stack in the test port that had the highest average NO_x concentration corrected to 15% O_2.

- If at any one point the NO_x concentration corrected to 15% O_2 is more than 10% off the mean NO_x concentration corrected to 15% O_2 for all 12 traverse points, then the sampling for each test run will consist of a 12-point traverse.

The reference method analyzers will be calibrated prior to and following the 12-point stratification test. All NO_x and O_2 averages at each test point will be corrected for bias and drift following the procedures in RM 7E.

3.2 NO_x Emission Testing

NO_x concentration corrected to 15% O_2 will be measured using RM 7E (NO_x) and RM 3A (O_2), as referenced in Section 2.0 of RM 20. The testing will be performed at four (4) distinct operating loads as defined in §60.335(b)(2) except that LBR shall not be required to test at 90-100 percent of design capacity as one of its four load points. The testing will also be performed with the turbine combusting purchased propane, fuel gas[2] and/or No. 2 fuel oil (i.e., one set of

[1] Specified in §60.335(a)(5)(i)(B) of Subpart GG.

[2] For the purposes of this test plan, "fuel gas" refers to either site-produced refinery fuel gas ("byproduct/waste" gas) and site-produced or purchased propane and/or butane.

four operating loads for each fuel). A minimum of three (3) 21-minute test runs (see Section 8.4 of RM 20) will be performed at each operating load for each fuel condition.

The unit load levels will be defined as follows:

- 90-100 percent of permitted load or highest achievable load point during the test program,
- 70-80 percent of permitted load or highest achievable load point during the test program,
- 45-55 percent of permitted load or highest achievable load point during the test program and
- 25-35 percent of permitted load or highest achievable load point during the test program.

During the test program, unit load may be restricted by equipment limitations, ambient conditions. Therefore, the permitted peak load may not be achievable.

For the each test run, the 21-minute average NO_x concentration will be reported in terms of NO_x parts per million on a dry basis (ppmd) corrected to 15% O_2 and ISO standard conditions using the following equation §60.335(b)(1) of Subpart GG:

$$NO_{x(ISO)} = \left(C_{NOx} \times \left(\frac{20.9 - 15}{20.9 - \%O2}\right)\right) \times \left(\sqrt{\frac{P_r}{P_o}}\right) \times e^{19 \times (H_o - 0.00633)} \times \left(\frac{288}{T_a}\right)^{1.53}$$

Where:

$NO_{x(ISO)}$	=	NO_x ppmd @15% O_2 (ISO conditions)
C_{NOx}	=	NO_x concentration (ppmd)
$\%O_2$	=	O_2 concentration (%d)
P_r	=	Reference Pressure (760 mm Hg)
P_o	=	Barometric Pressure (mm Hg)
H_o	=	Observed humidity of ambient air (g H_2O/g air)
T_a	=	Ambient temperature (K)

The average NO_x concentration at ISO conditions for each operating load level will be based on the average of the minimum three (3) test runs performed at each operating load level. The NO_x emission limits for G-3407 are 159.8 ppmd NO_x at ISO conditions with the unit firing fuel gas and 150.0 ppmd NO_x at ISO conditions with the unit firing No. 2 fuel oil.

3.3 NO_x Data Reduction

The RM analyzer measurements will be recorded as both 1- and 21-minute averages either manually or on the test team's data acquisition system (DAS). All test run concentration results

will be determined from the average gas concentrations measured during the run and adjusted based upon the zero and upscale sampling system bias check results (per Equation 7E-5 presented in Method 7E, §12.6). The bias and drift corrected NO_x and O_2 values calculated for each 21-minute test run will be used to calculate the NO_x concentration at ISO conditions as shown in the equation is Section 3.2 of this test plan.

3.4 SO_2 Fuel Sampling

During the performance test, LBR will determine the sulfur content of the fuel(s) combusted in the turbine. A minimum of three fuel samples will be collected during the performance test and analyzed for total sulfur content using methods approved in §60.335(b)(10).

4.0 PROCESS DATA

In order to appropriately report the performance test data, the following process data will be provided by the plant, either manually or by the plant's DAS: (1) date, (2) time, (3) source, (4) operating load and (5) fuel fired/rate.

5.0 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

The previously described reference methods are very technique oriented. Attempts to minimize any and all factors which can increase test measurement error are performed by implementing a Quality Assurance Program (and their associated procedures) into every segment of the testing activities. The following sections detail all QA/QC procedures to be followed during the test program.

5.1 Sampling Equipment Calibrations

All of the emission testing equipment used will be calibrated according to the procedures outlined in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, EPA-600/4-77-207b.

5.2 Calibration Gases

All calibration gases used during the test program will be EPA Protocol provided by reputable calibration gas vendors. No calibration gas cylinders will be used that have reached or exceeded their expiration date(s), nor will they be used if they contain less than 100 psi of gas. Copies of the calibration gas "certificates of analysis" can be made available on-site during the test program and will be provided in the final test report.

6.0 TEST REPORTS

Upon completion of the performance test program, a preliminary (draft final) report will be provided to LBR's Environmental Department – Air Group for internal review prior to submitting the final report(s).

The final test report(s) will include the following:

- All performance test results and calculations
- Field test data (produced by RM and facility, where applicable) of the following
- Source process data
- RM calibration data
- RM QA check results
- Stack information (dimensions and process/data flow diagrams)
- RM calibration gas values
- RM calibration gas certificates of analysis
- Narrative discussion of the test program (including test method procedures)

Consistent with Consent Decree condition 136.d.iv.(4) LBR intends to submit the performance test report **within 30 days** of the completion of the performance testing to EPA and VIDPNR.

APPENDIX 1

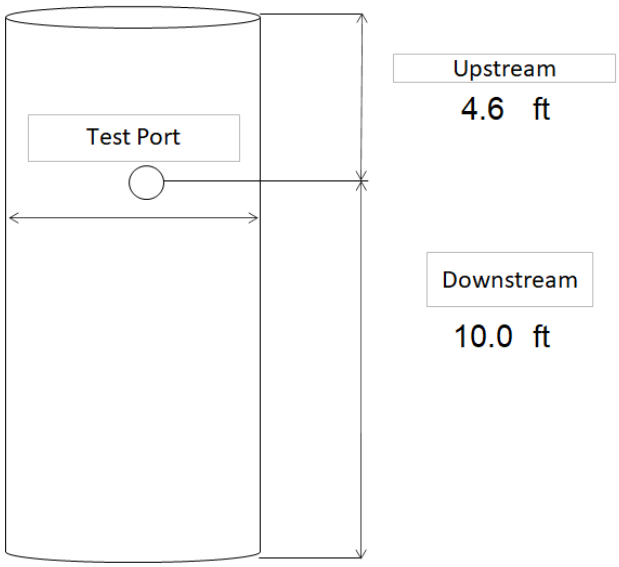
Sample Location Dimensions & Traverse Point Determinations

Client:	Limetree Bay Refinery
Unit Tested:	G-3407
Sampling Location:	Stack
Stack Diameter (inches):	124.00 X 98.00
Nipple Length:	0.00 inches
Number of Test Ports:	4
Location of Test Ports:	Length (Length or Width Side)
Matrix:	4x3
# of Traverse Points:	12.00

Distance from Nearest Disturbance:

Upstream:	4.60 ft
Downstream:	10.00 ft

Probe Travers Points	Inches
Point 1	16.25
Point 2	49.00
Point 3	81.75



Square/Rectangular Duct Sample Matrix

Port A	*	*	*
Port B	*	*	*
Port C	*	*	*
Port D	*	*	*

Limetree Bay Refining Operating, LLC
Gas Turbine #8 (G-3408)
Compliance Test Plan
40 CFR Part 60

Anticipated Test Dates: August 2020

For

Limetree Bay Refining Operating, LLC
#1 Estate Hope
Christiansted, VI 00820

Prepared by:

RTP Environmental Associates, Inc.
304-A Millbrook Road
Raleigh, NC 27609

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1.0 INTRODUCTION

Limetree Bay Terminals, LLC / Limetree Bay Refining Operating, LLC (LBR) is in receipt of Construction Permit STX-924-AC-18 issued by the U.S. Virgin Islands Department of Planning and Natural Resources (VI DPNR). Construction Permit STX-924-AC-18 permits the modification of certain process units in order to resume refining operations at the LBR refinery which were idled under previous ownership in 2011 and 2012. Consistent with the permit application, LBR shall continue to comply with the applicable regulatory requirements as defined in Title V Permit No. STX-TV-003-10 for all emission units affected but not modified by the construction project (the "MARPOL" project). A revised Title V Permit application was submitted on July 17, 2019. At the time of preparation and submittal of this test plan, a final revision of Title V permit has not been received. LBR is also in receipt of the First Modification of the facility Consent Decree (Civ. No. 1:11-cv-00006), hereafter referred to as the facility Consent Decree.

The facility Consent Decree that limits the operation of certain gas turbines until such time that LBR can demonstrate full compliance with NSPS Subparts A and GG. LBR is currently limited to operating G-3408 at a maximum load (based on a 1-hour block average) of 12.14 MW when combusting propane gas and 11.09 MW when combusting fuel oil or fuel gas. In order to operate the unit above these maximum load limits, LBR must demonstrate the ability to operate without exceeding the emission limitations of NSPS Subpart GG. LBR has prepared the following compliance test plan to meet the notification requirements for required performance test(s) as set forth by the Environmental Protection Agency (EPA) in Title 40 of the Code of Federal Regulations Part 60 (40 CFR Part 60) §60.8(d), Title V Permit No. STX-TV-003-10, the Virgin Islands Air Code (CVIR 12-009-000) Section 206-25(b), and Consent Decree testing notification requirements found in Condition 136.d.ii.v.(3). This compliance plan discusses the performance testing that will take place for GT-8 (Source ID G-3408) in order to establish a subsequent Maximum Load Limit consistent with Subparagraph 136.d.iv of the draft revised Consent Decree.

Performance testing for NO_x emissions will be performed in accordance with the procedures specified in 40 CFR Part 60, Subpart GG. Mostardi-Platt is anticipated to perform the EPA reference method (RM) testing for this test project and provide the written report summarizing

the results of the test program. Overall project oversight and test protocol development will be provided by RTP Environmental Associates (RTP). Table 1 contains the contact information for all relevant parties.

Table 1: Test Program Contact List

Contact	Company	Address	Phone/Email
Ms. Maria Aloyo	LBR	1 Estate Hope Christiansted, VI 00820-5652	340-692-3781 MAloyo@lbenergy.com
Mr. Stuart Burton	Mostardi-Platt	888 Industrial Drive Elmhurst, IL	630-993-2100 SBurton@mp-mail.com
Ms. Bethany White	RTP	304A West Millbrook Rd. Raleigh, NC 27609	919-578-4876 bwhite@rtpenv.com

The test program is scheduled to begin no sooner than August 21, 2020. A specific test schedule will be determined based on the operating status of the various units to be tested at the facility during the test program and will be provided to the Administrator upon request.

Appendix 1 contains Reference Method (RM) 1 site location information for G-3408, sample traverse points for the RM 3A and 7E test methods.

1.1 TIMING OF TESTS

Performance tests demonstrating compliance with the NO_x emission standard in NSPS Subpart GG and in Title V Permit STX-TV-003-10 were conducted under reduced-load conditions in 2016 and 2018. Subsequent NO_x performance testing following the procedures in NSPS Subpart GG and in Title V Permit STX-TV-003-10 will be performed at four (4) defined operating loads and two (2) fuel conditions as necessary to establish a new Maximum Load Limit consistent with Consent Decree requirements.

2.0 FACILITY DESCRIPTION

2.1 Facility Location

The LBR facility is located at 1 Estate Hope in Christiansted, St. Croix, Virgin Islands.

2.2 Source Descriptions

G-3408 is a 361.2 mmBtu/hr combined cycle gas turbine that commenced construction, modification, or reconstruction after October 3, 1977. G-3408 combusts site-produced gaseous fuel and/or purchased propane, butane or fuel oil. G-3408 is subject to the nitrogen oxide (NO_x) emission limit and sulfur dioxide (SO_2) fuel sampling procedures specified in 40 CFR Part 60, Subpart GG.

2.3 Reference Method Sampling Location

The stack testing locations (as well as other pertinent, descriptive information) for G-3408 are described in Table 2. Appendix 1 of this test plan contains the stack diagrams and dimensions for G-3408. All stack dimensions will be verified for completeness and accuracy at the time of testing.

Table 2: Stack Testing Locations – G-3408

Test Location	Stack Exit Height (feet)	Test Port Height (feet)	Flow Disturbances		Stack ID (feet)
			Upstream (feet)	Downstream (feet)	
Stack	52	47.4	4.6	10	10.33 x 8.17

3.0 Subpart GG Performance Testing

3.1 NO_x Stratification Testing

Prior to the start or a part of the first test run for the initial load-level, a 12-point stratification test will be performed using the procedures outlined Section 6.5.6.1(a) of Appendix A of 40 CFR Part 75[1]. The calculation of stratification criteria will be based on NO_x concentrations corrected to 15% O_2. Based on the results of the stratification testing, the number and location of traverse points for the NO_x performance test are defined below:

- If the NO_x concentration corrected to 15% O_2 at each traverse point is within 5% of the mean NO_x concentration corrected to 15% O_2 for all 12 traverse points, then the sampling may be performed at a single sampling point located at least 1-meter from the interior stack wall or within centroid of the stack.

- If the NO_x concentration corrected to 15% O_2 at each traverse point is within 10% of the mean NO_x concentration corrected to 15% O_2 for all 12 traverse points, then the sampling may be performed at three (3) sampling points located at 16.7, 50.0 and 83.3 percent of the depth of the stack in the test port that had the highest average NO_x concentration corrected to 15% O_2.

- If at any one point the NO_x concentration corrected to 15% O_2 is more than 10% off the mean NO_x concentration corrected to 15% O_2 for all 12 traverse points, then the sampling for each test run will consist of a 12-point traverse.

The reference method analyzers will be calibrated prior to and following the 12-point stratification test. All NO_x and O_2 averages at each test point will be corrected for bias and drift following the procedures in RM 7E.

3.2 NO_x Emission Testing

NO_x concentration corrected to 15% O_2 will be measured using RM 7E (NO_x) and RM 3A (O_2), as referenced in Section 2.0 of RM 20. The testing will be performed at four (4) distinct operating loads as defined in §60.335(b)(2) except that LBR shall not be required to test at 90-100 percent of design capacity as one of its four load points. The testing will also be performed with the turbine combusting purchased propane, fuel gas[2] and/or No. 2 fuel oil (i.e., one set of

[1] Specified in §60.335(a)(5)(i)(B) of Subpart GG.

[2] For the purposes of this test plan, "fuel gas" refers to either site-produced refinery fuel gas ("byproduct/waste" gas) and site-produced or purchased propane and/or butane.

four operating loads for each fuel). A minimum of three (3) 21-minute test runs (see Section 8.4 of RM 20) will be performed at each operating load for each fuel condition.

The unit load levels will be defined as follows:

- 90-100 percent of permitted load or highest achievable load point during the test program,
- 70-80 percent of permitted load or highest achievable load point during the test program,
- 45-55 percent of permitted load or highest achievable load point during the test program and
- 25-35 percent of permitted load or highest achievable load point during the test program.

During the test program, unit load may be restricted by equipment limitations, ambient conditions. Therefore, the permitted peak load may not be achievable.

For the each test run, the 21-minute average NO_x concentration will be reported in terms of NO_x parts per million on a dry basis (ppmd) corrected to 15% O_2 and ISO standard conditions using the following equation §60.335(b)(1) of Subpart GG:

$$NO_{x(ISO)} = \left(C_{NOx} \times \left(\frac{20.9 - 15}{20.9 - \%O2}\right)\right) \times \left(\sqrt{\frac{P_r}{P_o}}\right) \times e^{19 \times (H_o - 0.00633)} \times \left(\frac{288}{T_a}\right)^{1.53}$$

Where:

$NO_{x(ISO)}$	=	NO_x ppmd @15% O_2 (ISO conditions)
C_{NOx}	=	NO_x concentration (ppmd)
$\%O_2$	=	O_2 concentration (%d)
P_r	=	Reference Pressure (760 mm Hg)
P_o	=	Barometric Pressure (mm Hg)
H_o	=	Observed humidity of ambient air (g H_2O/g air)
T_a	=	Ambient temperature (K)

The average NO_x concentration at ISO conditions for each operating load level will be based on the average of the minimum three (3) test runs performed at each operating load level. The NO_x emission limits for G-3408 are 166 ppmd NO_x at ISO conditions with the unit firing fuel gas and 165 ppmd NO_x at ISO conditions with the unit firing No. 2 fuel oil.

3.3 NO_x Data Reduction

The RM analyzer measurements will be recorded as both 1- and 21-minute averages either manually or on the test team's data acquisition system (DAS). All test run concentration results

will be determined from the average gas concentrations measured during the run and adjusted based upon the zero and upscale sampling system bias check results (per Equation 7E-5 presented in Method 7E, §12.6). The bias and drift corrected NO_x and O_2 values calculated for each 21-minute test run will be used to calculate the NO_x concentration at ISO conditions as shown in the equation is Section 3.2 of this test plan.

3.4 SO_2 Fuel Sampling

During the performance test, LBR will determine the sulfur content of the fuel combusted in the turbine. A minimum of three fuel samples will be collected during the performance test and analyzed for total sulfur content using methods approved in §60.335(b)(10).

4.0 PROCESS DATA

In order to appropriately report the performance test data, the following process data will be provided by the plant, either manually or by the plant's DAS: (1) date, (2) time, (3) source, (4) operating load and (5) fuel fired/rate.

5.0 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

The previously described reference methods are very technique oriented. Attempts to minimize any and all factors which can increase test measurement error are performed by implementing a Quality Assurance Program (and their associated procedures) into every segment of the testing activities. The following sections detail all QA/QC procedures to be followed during the test program.

5.1 Sampling Equipment Calibrations

All of the emission testing equipment used will be calibrated according to the procedures outlined in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, EPA-600/4-77-207b.

5.2 Calibration Gases

All calibration gases used during the test program will be EPA Protocol provided by reputable calibration gas vendors. No calibration gas cylinders will be used that have reached or exceeded their expiration date(s), nor will they be used if they contain less than 100 psi of gas. Copies of the calibration gas "certificates of analysis" can be made available on-site during the test program and will be provided in the final test report.

6.0 TEST REPORTS

Upon completion of the performance test program, a preliminary (draft final) report will be provided to LBR's Environmental Department – Air Group for internal review prior to submitting the final report(s).

The final test report(s) will include the following:

- All performance test results and calculations
- Field test data (produced by RM and facility, where applicable) of the following
- Source process data
- RM calibration data
- RM QA check results
- Stack information (dimensions and process/data flow diagrams)
- RM calibration gas values
- RM calibration gas certificates of analysis
- Narrative discussion of the test program (including test method procedures)

Consistent with Consent Decree condition 136.d.iv.(4) LBR intends to submit the performance test report **within 30 days** of the completion of the performance testing to EPA and VIDPNR.

APPENDIX 1

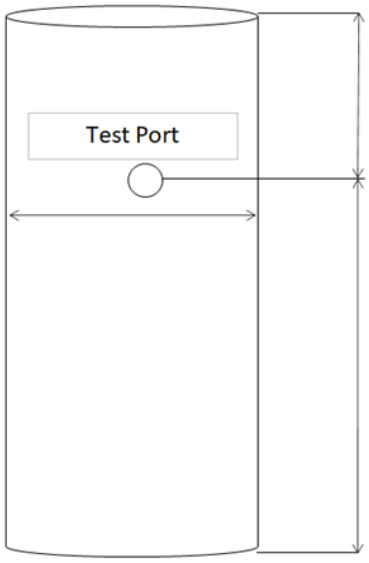
Sample Location Dimensions & Traverse Point Determinations

Client:	Limetree Bay Refinery
Unit Tested:	G-3408
Sampling Location:	Stack
Stack Diameter (inches):	124.00 X 97.75
Nipple Length:	0.00 inches
Number of Test Ports:	4
Location of Test Ports:	Length (Length or Width Side)
Matrix:	4x3
# of Traverse Points:	12.00

Distance from Nearest Disturbance:

Upstream:	4.60 ft
Downstream:	10.00 ft

Probe Travers Points	Inches
Point 1	16.25
Point 2	49.00
Point 3	81.50



Square/Rectangular Duct Sample Matrix

Port A	*	*	*
Port B	*	*	*
Port C	*	*	*
Port D	*	*	*

Limetree Bay Refining Operating, LLC
Gas Turbine #9 (G-3409)
Compliance Test Plan
40 CFR Part 60

Anticipated Test Dates: August 2020

For

Limetree Bay Refining Operating, LLC
#1 Estate Hope
Christiansted, VI 00820

Prepared by:

RTP Environmental Associates, Inc.
304-A Millbrook Road
Raleigh, NC 27609

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1.0 INTRODUCTION

Limetree Bay Terminals, LLC / Limetree Bay Refining Operating, LLC (LBR) is in receipt of Construction Permit STX-924-AC-18 issued by the U.S. Virgin Islands Department of Planning and Natural Resources (VI DPNR). Construction Permit STX-924-AC-18 permits the modification of certain process units in order to resume refining operations at the LBR refinery which were idled under previous ownership in 2011 and 2012. Consistent with the permit application, LBR shall continue to comply with the applicable regulatory requirements as defined in Title V Permit No. STX-TV-003-10 for all emission units affected but not modified by the construction project (the "MARPOL" project). A revised Title V Permit application was submitted on July 17, 2019. At the time of preparation and submittal of this test plan, a final revision of Title V permit has not been received. LBR is also in receipt of the First Modification of the facility Consent Decree (Civ. No. 1:11-cv-00006), hereafter referred to as the facility Consent Decree.

LBR has prepared the following compliance test plan to meet the notification requirements for required performance test(s) and the continuous emissions monitoring system (CEMS) performance evaluation test(s) ("CEMS certification test") as set forth by the Environmental Protection Agency (EPA) in Title 40 of the Code of Federal Regulations Part 60 (40 CFR Part 60) §60.7(a)(5), Title V Permit No. STX-TV-003-10, and the Virgin Islands Air Code (CVIR 12-009-000) Section 206-25(b). This compliance plan discusses the stack CEMS certification testing as well as the performance testing that will take place upon re-start of GT-9 (Source ID G-3409).

The gaseous CEMS measure the emissions of nitrogen oxides (NO_x) and carbon monoxide (CO) in units of parts per million on a dry basis at a dilution of 15-percent oxygen (ppm @15 $\%O_2$). This test plan outlines the procedures to be followed, the test methods to be used, and any requested deviations from either the specific conditions or limitations as listed in Air Permit No. STX-TV-003-10, or from the test methods themselves. Table 1 provides a summary of the relative accuracy criteria for each component being assessed as part of the RATA.

Table 1: Relative Accuracy Criteria

Parameter	Units	Relative Accuracy Specification	
		RM Mean ≥50% of Emission Standard	RM Mean <50% of Emission Standard
NO_x	ppmvd @ 15% O_2	20% of RM Mean	10% of Emission Standard
CO	ppmvd @ 15% O_2	10% of RM Mean	5% of Emission Standard
Diluent CEMS		**Primary Criteria**	**Alternative Criteria**
O_2	$\%_d$	20% of RM Mean	±1.0% Absolute Difference

Mostardi-Platt is anticipated to perform the EPA reference method (RM) testing for this test project and provide the written report summarizing the results of the test program. Overall project oversight and test protocol development will be provided by RTP Environmental Associates (RTP). Table 2 contains the contact information for all relevant parties.

Table 2: Test Program Contact List

Contact	Company	Address	Phone/Email
Ms. Maria Aloyo	LBR	1 Estate Hope Christiansted, VI 00820-5652	340-692-3781 MAloyo@lbenergy.com
Mr. Stuart Burton	Mostardi-Platt	888 Industrial Drive Elmhurst, IL	630-993-2100 SBurton@mp-mail.com
Ms. Bethany White	RTP	304A West Millbrook Rd. Raleigh, NC 27609	919-578-4876 bwhite@rtpenv.com

The test program is scheduled to begin no sooner than August 21, 2020. A specific test schedule will be determined based on the operating status of the various units to be tested at the facility during the test program. A specific test schedule will be provided to the Administrator upon request.

Appendix 1 contains Reference Method (RM) 1 site location information for G-3409, sample traverse points for the RM 3A, 7E and 10 for each test run.

1.1 TIMING OF TESTS

CEMS certification tests were conducted under previous ownership in accordance with 40 CFR Subpart A §60.13(b). As a result of source idling, the required quality assurance and quality control activities for the CEMS were not conducted. An initial performance test demonstrating

compliance with the NO_x emission standard of NSPS Subpart GG will be performed as required by §60.335(b). Consistent with §60.335(b)(6), the initial performance test will be conducted in conjunction with the NO_x RATA for the source. Consistent with Appendix L of the Consent Decree, the demonstration of compliance and CEMS certification will be achieved not later than 60 days after achieving the maximum production rate of G-3409 or not later than 180 days after initial restart, whichever comes first. For a fuel gas combustion device, restart is resumption of operation while combusting fuel gas.

The CEMS certification test may be performed while combusting site-produced fuel gas, purchased propane, or a combination thereof. The certification of the H_2S CEMS which measures the common source of fuel gas for G-3409 will not be conducted until site-produced fuel gas is available for combustion[1]. A separate notification will be prepared to summarize the H_2S CEMS certification tests.

[1] Until such time that site-produced fuel gas is combusted, G-3409 is not a fuel gas combustion device as defined 40 CFR Subpart J §60.101 and is not subject to the H_2S monitoring requirements of 40 CFR Subpart J §60.105(a)(4).

2.0 FACILITY DESCRIPTION

2.1 Facility Location

The LBR facility is located at 1 Estate Hope in Christiansted, St. Croix, Virgin Islands.

2.2 Source Descriptions

G-3409 is a 361.2 mmBtu/hr simple cycle combustion turbine that commenced construction, modification, or reconstruction after October 3, 1977. G-3409 combusts site-produced gaseous fuel and/or purchased propane, butane or fuel oil and is subject to the nitrogen oxide (NO_x) emission limit and monitoring requirements and sulfur dioxide (SO_2) fuel sampling procedures specified in 40 CFR Part 60, Subpart GG. G-3409 is also subject to the NO_x and carbon monoxide (CO) emission limits and monitoring requirements specified Title V Permit No. STX-TV-003-10[2]. G-3409 is equipped with a heat recovery steam generator (HRSG) that is used during normal operation and emits through the primary waste heat boiler stack, the main stack. During startup or if there are problems with the waste heat boiler, the unit emits through a secondary, bypass stack. The monitors installed on G-3409 operate on a time-share basis between the main stack and the bypass stack. A single set of monitors is used to measure emissions from either the main stack or bypass stack depending on which stack is active at any given time.

Consistent with 40 CFR Part 60, Subpart J §60.105(a)(4), LBR has elected to install an instrument for continuously monitoring and recording the concentration (dry basis) of hydrogen sulfide (H_2S) in fuel gas at common fuel source locations in lieu of installing a stack SO_2 monitor for G-3409 for compliance with the SO_2 emission limit specified in 40 CFR Part 60, Subpart J.

2.3 Reference Method Sampling Location

The CEMS monitoring and stack testing locations (as well as other pertinent, descriptive information) for G-3409 are described in Table 3. Appendix 1 of this test plan contains the stack diagrams and dimensions for G-3409 main stack and bypass stack. All stack dimensions will be verified for completeness and accuracy at the time of testing.

[2] Permit limits are stricter than those specified in 40 CFR Part 60, Subpart GG.

The RM locations and CEMS locations are at least two equivalent diameters downstream from the point at which pollutant concentration changes occur and at least a half equivalent diameter upstream from the effluent exhaust.

Table 3: Stack Testing Locations – G-3409

Test Location	Stack Exit Height (feet)	Test Port Height (feet)	Downstream (feet)	Upstream (feet)	Stack ID (feet)
Main Stack CEMS & RM	65	59.5	59.5	5.5	11
Bypass Stack CEMS & RM	49.7	31.2	31.2	17.8	(12.25x5.5) 7.6 D_{eq}

2.4 Source CEMS Description

LBR has installed NO_x, CO and O_2 CEMS to comply with the monitoring requirements of 40 CFR Part 60, Subpart GG and Title V Permit No. STX-TV-003-10 on the stacks serving G-3409. Table 4 provides the monitor location, manufacturer, model, serial number, and span of each CEMS for G-3409.

Table 4: CEMS Monitor Information – G-3409

Monitor	Location	Manufacturer/Model	Serial Number	Span
NO_x	Stack	Thermo Environmental Instruments 42HL	1109147766	50 ppm 200 ppm
CO	Stack	Thermo Environmental Instruments 48iQ	1190952415	300 ppm 1200 ppm
O_2	Stack	Servomex 1440	3664	25%

The NO_x, CO and O_2 emissions will be measured at the G-3409 stacks using a straight (dry)-extractive sampling system. The straight extractive monitoring system withdraws a sample from the active stack through a single port extraction sample probe and into a moisture removal system (which can either be at the sampling location or in the CEMS shelter near the base of the stack). Once the moisture is removed, the dry sample is transported to the monitor(s) which are located in an environmentally-controlled shelter. The NO_x and CO monitors will each be configured as dual-range monitors. The range of the NO_x and CO monitors were established consistent with the specifications in Performance Specifications (PS) 2 and 4 and the anticipated emissions during normal operation and startup periods.

The NO_x, CO and O_2 CEMS were installed on the stacks serving G-3409. The stack measurement locations were selected at an accessible location where the measurements are directly representative of the emissions from G-3409. Consistent with the recommendations of §8.1.2 of 40 CFR Part 60, Appendix B, PS-2, the CEMS measurement locations are at least 2 equivalent diameters downstream from the nearest control device, point of pollutant generation or other point at which a change in the pollutant concentration is likely to occur and at least a half equivalent diameter upstream from the effluent exhaust.

2.5 Applicable Performance Specifications

LBR conducted the installation of the CEMS and intends to conduct an initial certification of the CEMS in accordance with the manufacturers' recommendations as well as the applicable PS of 40 CFR Part 60 Appendix B. Table 5 summarizes the applicable PS for each CEMS.

Table 5: Performance Specifications

Parameter	Location	Performance Specification
NO_x	Each Stack	PS-2
CO	Each Stack	PS-4
O_2	Each Stack	PS-3

3.0 CEMS CERTIFICATION TEST PROCEDURES

This section includes a discussion of the certification test procedures and test methods that will be used for performing the gaseous CEMS certification test procedures, including the relative accuracy test audit (RATA) test methods. The CEMS will be certified in accordance with 40 CFR Part 60, Appendix B, PS 2, 3 and 4. Unless stated otherwise, all stack sampling will be performed in accordance with the applicable test methods as described herein. Any deviations from the standard procedures are clearly noted in the following subsections. The following reference methods will or may be utilized during the test program:

- Reference Method 3A Determination of O_2 and CO_2 (Instrumental Procedure)
- Reference Method 7E Determination of NO_x (Instrumental Procedure)
- Reference Method 10 Determination of CO (Instrumental Procedure)

All RM analyzers used during this test program will be those models using the analysis techniques typically seen in industry on these types of sources.

Since the NO_x, CO, and O_2 reference method testing is used to certify a CEMS system, the sample site selection and traverse point layout procedures described in 40 CFR Part 60, Appendix B, PS-2 §8.1.3 will be followed. A three (3) point traverse will be performed along a single "long" measurement line at 16.7, 50.0, and 83.7 percent of the stack inside diameter unless a 12-point stratification test is conducted first to demonstrate the acceptable use of a "short" measurement line at 0.4, 1.2, and 2.0 meters from the stack wall.

3.1 CEMS Certification Tests

LBR installed each CEMS according to the manufacturers recommendations and industry standard practices. After re-start of the affected source, LBR will conduct CEMS certification testing in accordance with the applicable performance specifications.

Descriptions of the certification test procedures to be used are presented in the subsections below. The two primary tests to be performed on each monitor are:

1. The 7-day calibration drift test, and
2. The relative accuracy test audit (RATA)

Data recorded by the CEMS may not be used to assess compliance or monitor availability until both certification tests are successfully completed.

3.1.1 7-Day Calibration Error Test

For the CEMS certification, a 7-day calibration drift test will be performed on the stack NO_x, CO and O_2 monitors in accordance with the procedures specified by 40 CFR Part 60, Appendix B, PS-2, §8.3. The test measures each instrument's daily calibration error during seven consecutive unit operating days. The magnitude of the calibration drift is quantified at approximately 24-hour intervals but is evaluated during seven consecutive unit operating days, not necessarily consecutive calendar days.

The 7-day calibration drift test will challenge each monitor once per day at each of two calibration levels while the monitors are operating in their normal sampling modes. The reference gases need not be certified consistent with §7.1 of PS-2. Table 6 provides the acceptable calibration levels for each of the G-3409 stack CEMS.

No manual or automatic adjustments (i.e., resetting the calibration) will be made to the monitors either prior to or during each of the seven daily calibration error checks. Manual or automatic adjustment to the monitor setting are permitted, however, provided that they are made after taking measurements at both the zero and span-level concentration for that day. If automatic adjustments are made by the monitor, the test will be performed in a manner that will determine and record the extent of the adjustments. The calibration gas will be injected such that it passes through all filters, scrubbers, conditioners, and other monitor components used during normal sampling, and through as much of the sampling probe as practical.

The 7-day calibration drift test results are acceptable if the test results are less than or equal to the levels specified in Table 6 for each monitor. For the NO_x and CO monitor, the calibration drift is calculated as a percentage of the instrument span as follows:

$$CD = \left|\frac{C - M}{S}\right| \times 100$$

Where: CD = Percentage calibration drift based upon instrument span (%)
C = Reference value of zero- or upscale-level calibration gas
M = Actual monitoring system response to the calibration gas
S = Span of the instrument

For the O_2 monitor, the calibration drift is calculated as the absolute value of the mean difference between the reference value and the actual monitoring system response. For the NO_x and O_2 monitors, the calibration drift on each of the seven days must be less than or equal to the levels specified in Table 6. For the CO monitor, the calibration drift on six (6) of the seven days must be less than or equal to the levels specified in Table 6.

Table 6: 7-Day Calibration Drift Performance Specifications

Parameter	Location	Span	Zero-Level	Span-Level	Criteria
NO_x	Stack	50 ppm	0-10 ppm	25-50 ppm	≤2.5% (Each day)
		200 ppm	0-40 ppm	100 – 200 ppm	
CO	Stack	300 ppm	0-60 ppm	150-300 ppm	≤5% (6 of 7 days)
		1200 ppm	0-240 ppm	600-1200 ppm	
O_2	Stack	25%	0-5% O_2	12.5-25% O_2	±0.5 % O_2 (Each Day)

3.1.2 Relative Accuracy Test Audit

To satisfy the RATA requirements for the NO_x CEMS and O_2 measurements, the relative accuracy of a minimum nine-run performance test must be less than or equal to 20% of the mean value of the reference data or less than or equal to 10% of the applicable emission standard for the NO_x CEMS. The NO_x emission standard for G-3409 is 42 ppm_d @15% O_2. To satisfy the RATA requirements for the CO CEMS, the relative accuracy of a minimum nine-run performance test must be less than or equal to 10% of the mean value of the reference data or less than or equal to 5% of the applicable emission standard for the CO CEMS. The CO emission standard for G-3409 is 206.5 ppm_d @15% O_2.

If the average NO_x or CO reference method value during the RATA is less than 50% of the emission standard, an alternative relative accuracy will be calculated using the appropriate emission standard value as the basis rather than the average reference method value during the RATA.

The relative accuracy will be calculated using the results of a minimum of nine test runs and one of the following equations:

$$RA = \frac{|\bar{d}| + |CC|}{RM} \; or \; \frac{|\bar{d}| + |CC|}{ES}$$

Where:

RA = Relative accuracy
d = Mean absolute value of the differences between the CERM and reference method values
CC = Absolute value of the 2.5% error confidence coefficient
RM = Average reference method value (≥ 50% of equivalent emission standard)
ES = Equivalent emission standard (< 50% of equivalent emission standard)

A minimum of nine 21-minute comparative test runs will be performed for the RATA. During each sample run, a 3-point traverse will be conducted (see Appendix 1 for traverse point locations). A sample will be extracted from the stack effluent through a sample probe, sample conditioning system and sample line to a distribution manifold where a portion of the sample gas will be dispersed to each pollutant and diluent analyzer.

The NO_x and CO CEMS RATA results will be determined on a concentration at specified dilution (i.e., ppm @15% O_2). The concentration at the specified dilution will be calculated as follows:

$$E_{Pol} = ppm_d \times \left(\frac{20.9 - 15}{20.9 - \%O_{2d}}\right)$$

Where: E_{Pol} = Pollutant concentration at a known dilution, ppmd @ 15% O_2
ppm_d = Average pollutant concentration on a dry basis
$\%O_{2d}$ = Diluent concentration on a dry basis

4.0 PERFORMANCE TESTING PROCEDURES

4.1 NO_x Performance Test

A NO_x performance test will be conducted on the main stack serving G-3409 in accordance with 40 CFR Subpart GG. Consistent with §60.335(b)(7), a minimum of nine reference method runs with a minimum time per run of 21 minutes at a single load level, between 90 and 100% of peak load will be used to demonstrate compliance with the performance testing requirements of 40 CFR Subpart GG. It is not necessary to test at three additional load levels and it is not necessary to test on both gaseous and liquid fuels as the certified CEMS will be used for ongoing compliance.

4.2 SO_2 Fuel Sampling

During the performance test, LBR will determine the sulfur content of the fuel(s) combusted in the turbine. A minimum of three fuel samples will be collected during the performance test and analyzed for total sulfur content using methods approved in §60.335(b)(10).

5.0 PROCESS DATA

5.1 CEMS RATA

During the RATA, all data will be electronically logged and printed out by the DAHS. In order to appropriately calculate and report the CEMS RATA data, the following process data will be provided by the plant, either manually or by the plant's DAHS: (1) date, (2) time, (3) source, (4) operating load, (5) fuel fired/rate, (6) NO_x ppm, (7) CO ppm, (8) O_2 %, (9) NO_x ppm @15 %O_2 and (10) CO ppm @15 %O_2. All testing will be performed while the unit operates at a normal (i.e., > 50% of capacity) production rate under normal process conditions.

5.2 Performance Testing

In order to appropriately report the performance test data, the following process data will be provided by the plant, either manually or by the plant's DAS: (1) date, (2) time, (3) source, (4) operating load and (5) fuel fired/rate.

6.0 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

The previously described reference methods are very technique oriented. Attempts to minimize any and all factors which can increase test measurement error are performed by implementing a Quality Assurance Program (and their associated procedures) into every segment of the testing activities. The following sections detail all QA/QC procedures to be followed during the test program.

6.1 Sampling Equipment Calibrations

All of the emission testing equipment used will be calibrated according to the procedures outlined in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, EPA-600/4-77-207b.

6.2 Calibration Gases

All calibration gases used during the test program will be EPA Protocol provided by reputable calibration gas vendors. No calibration gas cylinders will be used that have reached or exceeded their expiration date(s), nor will they be used if they contain less than 100 psi of gas. Copies of the calibration gas "certificates of analysis" can be made available on-site during the test program and will be provided in the final test report.

7.0 TEST REPORTS

7.1 CEMS Certification Test Report

Upon completion of the test program, a preliminary (draft final) report will be provided to LBR's Environmental Department – Air Group for internal review prior to submitting the final report(s).

The final test report(s) will include the following:

- All certification test results and calculations
- Field test data (produced by RM and facility, where applicable) of the following:
    1. 7-day calibration drift test
    2. RATA
- Source process data
- RM calibration data
- RM QA check results
- Stack information (dimensions and process/data flow diagrams)
- Calibration gas values (RM)
- Calibration gas certificates of analysis (RM)
- Narrative discussion of the test program (including test method procedures)

40 CFR Part 60 §60.13(c)(2) requires that the CEMS certification report be submitted **within 60 days** of the completion of the certification testing.

7.2 Performance Test Report

Upon completion of the performance test program, a preliminary (draft final) report will be provided to LBR's Environmental Department – Air Group for internal review prior to submitting the final report(s).

The final test report(s) will include the following:

- All performance test results and calculations
- Field test data (produced by RM and facility, where applicable) of the following
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- RM QA check results

- Stack information (dimensions and process/data flow diagrams)
- RM calibration gas values
- RM calibration gas certificates of analysis
- Narrative discussion of the test program (including test method procedures)

LBR intends to submit the performance test report **within 60 days** of the completion of the performance testing.

APPENDIX 1

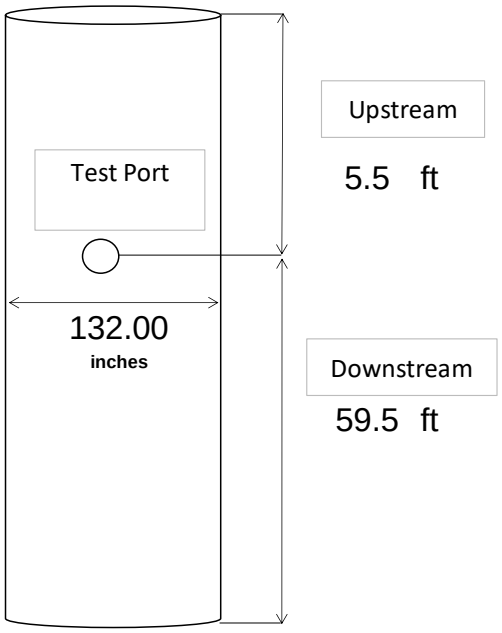
Sample Location Dimensions & Traverse Point Determinations

Client:	**Limetree Bay**
Unit Tested:	**G-3409**
Sampling Location:	**Main Stack**
Stack Diameter:	**132.00** inches
Nipple Length:	**3.00** inches
Number of Test Ports:	**4.00**

Distance from Nearest Disturbance:

Upstream:	**5.5** ft
Downstream:	**59.5** ft

Nox/CO/O2 RATA Traverse	**% of Diameter**	**3-Point**
	16.7%	25.00
	50.0%	69.00
	83.3%	113.00

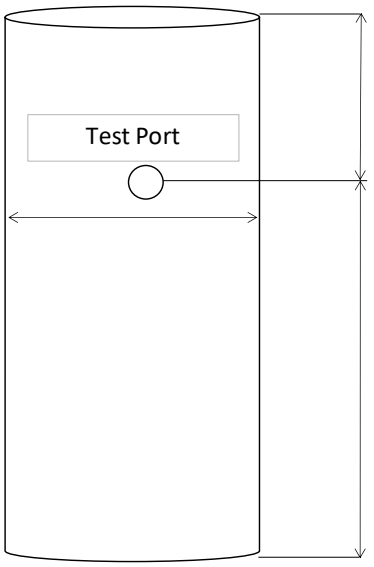


Client:	**Limetree Bay Refinery**
Unit Tested:	**G-3409**
Sampling Location:	**Bypass Stack**
Stack Diameter (inches):	**147.00 X 66.00**
Nipple Length:	**0.00** inches
Number of Test Ports:	**3**
Location of Test Ports:	**Length** (Length or Width Side)
Matrix:	**4x3**
# of Traverse Points:	**12.00**

Distance from Nearest Disturbance:

Upstream:	**4.60** ft
Downstream:	**10.00** ft

Probe Travers Points	Inches
Point 1	8.25
Point 2	24.75
Point 3	41.25
Point 4	57.75



Square/Rectangular Duct Sample Matrix

Port A	*	*	*	*
Port B	*	*	*	*
Port C	*	*	*	*

Limetree Bay Refining Operating, LLC
Gas Turbine #10 (G-3410)
Compliance Test Plan
40 CFR Part 60

Anticipated Test Dates: August 2020

For

Limetree Bay Refining Operating, LLC
#1 Estate Hope
Christiansted, VI 00820

Prepared by:

RTP Environmental Associates, Inc.
304-A Millbrook Road
Raleigh, NC 27609

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Table 1: Relative Accuracy Criteria

Parameter	Units	Relative Accuracy Specification	
		RM Mean ≥50% of Emission Standard	RM Mean <50% of Emission Standard
NO_x	ppmvd @ 15% O_2	20% of RM Mean	10% of Emission Standard
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Ms. Bethany White	RTP	304A West Millbrook Rd. Raleigh, NC 27609	919-578-4876 bwhite@rtpenv.com

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1.1 TIMING OF TESTS

CEMS certification tests were conducted under previous ownership in accordance with 40 CFR Subpart A §60.13(b). As a result of source idling, the required quality assurance and quality control activities for the CEMS were not conducted. Consistent with Condition 2.4.13.5 of the

revised Title V permit application, a RATA will be conducted within 120 calendar days after resuming Regular Operations where "Regular Operations" means that the idled unit has reached sustained operations and is now operating as intended in support of the output of product(s) or services after having been idled. In order to resume operation of the CEMS, certain major components[1] of the previously certified CEMS system have been replaced. As such, LBR intends to conduct a complete certification of the CEMS system in lieu of performing only a RATA for the system.

During the RATA, LBR will determine the sulfur content of the fuel combusted in the turbine. A minimum of three fuel samples will be collected during the performance test and analyzed for total sulfur content using methods approved in §60.335(b)(10).

The CEMS certification test may be performed while combusting site-produced fuel gas, purchased propane, or a combination thereof. The certification of the H_2S CEMS which measures the common source of fuel gas for G-3410 will not be conducted until site-produced fuel gas is available for combustion[2]. A separate notification will be prepared to summarize the H_2S CEMS certification tests.

[1] Though not specifically identified in rule text, LBR considers complete replacement of a probe that changes the sampling location, umbilical, or analyzer as major components for which recertification of the CEMS would be prudent.

[2] Until such time that site-produced fuel gas is combusted, G-3410 is not a fuel gas combustion device as defined 40 CFR Subpart J §60.101 and is not subject to the H_2S monitoring requirements of 40 CFR Subpart J §60.105(a)(4).

2.0 FACILITY DESCRIPTION

2.1 Facility Location

The LBR facility is located at 1 Estate Hope in Christiansted, St. Croix, Virgin Islands.

2.2 Source Descriptions

G-3410 is a 325.0 mmBtu/hr simple cycle combustion turbine that commenced construction, modification, or reconstruction after October 3, 1977. G-3410 combusts site-produced gaseous fuel and/or purchased propane, butane or fuel oil and as such is subject to the nitrogen oxide (NO_x) emission limit and monitoring requirements and sulfur dioxide (SO_2) fuel sampling procedures specified in 40 CFR Part 60, Subpart GG. G-3410 is also subject to the NO_x and carbon monoxide (CO) emission limits specified Title V Permit No. STX-TV-003-10[3]. G-3410 is equipped with a heat recovery steam generator (HRSG) that is used during normal operation and emits through the primary waste heat boiler stack, the main stack. During startup or if there are problems with the waste heat boiler, the unit emits through a secondary, bypass stack. The monitors installed on G-3410 operate on a time-share basis between the main stack and the bypass stack. A single set of monitors is used to measure emissions from either the main stack or bypass stack depending on which stack is active at any given time.

Consistent with 40 CFR Part 60, Subpart J §60.105(a)(4), LBR has elected to install an instrument for continuously monitoring and recording the concentration (dry basis) of hydrogen sulfide (H_2S) in fuel gas at common fuel source locations in lieu of installing a stack SO_2 monitor for G-3410 for compliance with the SO_2 emission limit specified in 40 CFR Part 60, Subpart J.

2.3 Reference Method Sampling Location

The CEMS monitoring and stack testing locations (as well as other pertinent, descriptive information) for G-3410 are described in Table 3. Appendix 1 of this test plan contains the stack diagrams and dimensions for G-3410. All stack dimensions will be verified for completeness and accuracy at the time of testing.

[3] Permit limits are stricter than those specified in 40 CFR Part 60, Subpart GG.

The RM location is at least two equivalent diameters downstream from the point at which pollutant concentration changes occur but is not at least a half equivalent diameter upstream from the effluent exhaust. A stratification test will be conducted prior to the start of emissions testing to verify the acceptability of the testing location.

Table 3: Stack Testing Locations – G-3410

Test Location	Stack Exit Height (feet)	Test Port Height (feet)	Downstream (feet)	Upstream (feet)	Stack ID (feet)
Main Stack CEMS & RM	75	63.5 / 70.5	25.4 / 32.4	11.5 / 4.5	11.3
Bypass Stack CEMS & RM	75	63.5 / 61	25.4 / 22.9	11.5 / 14	11.3

2.4 Source CEMS Description

LBR has installed NO_x, CO and O_2 CEMS to comply with the monitoring requirements of 40 CFR Part 60, Subpart GG and Title V Permit No. STX-TV-003-10 on the stacks serving G-3410. LBR has also installed COMS on both the main and bypass exhaust stacks. Table 4 provides the monitor location, manufacturer, model, serial number, and span of each CEMS for G-3410.

Table 4: CEMS Monitor Information – G-3410

Monitor	Location	Manufacturer/Model	Serial Number	Span
NO_x	Stack	Thermo Environmental Instruments 42HL	928238201	50 ppm 200 ppm
CO	Stack	Thermo Environmental Instruments 48iQ	1190952417	300 ppm 1200 ppm
O_2	Stack	Servomex 4900C1	653237	25%
Opacity	Main Stack	Teledyne Monitor Labs 560ES	5603190	100%
Opacity	Bypass Stack	Teledyne Monitor Labs 560ES	5603191	100%

The NO_x, CO and O_2 emissions will be measured at the G-3410 stacks using a straight (dry)-extractive sampling system. The straight extractive monitoring system withdraws a sample from the active stack through a single port extraction sample probe and into a moisture removal system (which can either be at the sampling location or in the CEMS shelter near the base of the

stack). Once the moisture is removed, the dry sample is transported to the monitor(s) which are located in an environmentally-controlled shelter. The NO_x and CO monitors will each be configured as dual-range monitors. The range of the NO_x and CO monitors were established consistent with the specifications in Performance Specifications (PS) 2 and 4 and the anticipated emissions during normal operation and startup periods.

The NO_x, CO and O_2 CEMS were installed on the stacks serving G-3410. The stack measurement location was selected at an accessible location where the measurements are directly representative of the emissions from G-3410. Consistent with the recommendations of §8.1.2 of 40 CFR Part 60, Appendix B, PS-2, the CEMS measurement location is at least 2 equivalent diameters downstream from the nearest control device, point of pollutant generation or other point at which a change in the pollutant concentration is likely to occur and at least a half equivalent diameter upstream from the effluent exhaust.

2.5 Applicable Performance Specifications

LBR conducted the installation of the CEMS and intends to conduct an initial certification of the CEMS in accordance with the manufacturers' recommendations as well as the applicable PS of 40 CFR Part 60 Appendix B. Table 5 summarizes the applicable PS for each CEMS.

Table 5: Performance Specifications

Parameter	Location	Performance Specification
NO_x	Each Stack	PS-2
CO	Each Stack	PS-4
O_2	Each Stack	PS-3
Opacity	Each Stack	PS-1

3.0 CEMS & COMS CERTIFICATION TEST PROCEDURES

This section includes a discussion of the certification test procedures and test methods that will be used for performing the gaseous CEMS and COMS certification test procedures, including the relative accuracy test audit (RATA) test methods. The CEMS will be certified in accordance with 40 CFR Part 60, Appendix B, PS 2, 4 and 3. The COMS will be certified following the procedures in 40 CFR Part 60, Appendix B, PS 1. Unless stated otherwise, all stack sampling will be performed in accordance with the applicable test methods as described herein. Any deviations from the standard procedures are clearly noted in the following subsections. The following reference methods will or may be utilized during the test program:

- Reference Method 3A Determination of O_2 and CO_2 (Instrumental Procedure)
- Reference Method 7E Determination of NO_x (Instrumental Procedure)
- Reference Method 10 Determination of CO (Instrumental Procedure)

All RM analyzers used during this test program will be those models using the analysis techniques typically seen in industry on these types of sources.

Since the NO_x, CO, and O_2 reference method testing is used to certify a CEMS system, the sample site selection and traverse point layout procedures described in 40 CFR Part 60, Appendix B, PS-2 §8.1.3 will be followed. However, since the reference method sampling location is not at least one half diameter from the stack exhaust for the main stack, a 12-point stratification test will be performed to verify the acceptability of the sampling location. Prior to the start or a part of the first test run, a 12-point stratification test will be performed using the procedures outlined Section 8.1.2 of Reference Method 7E of Appendix A of 40 CFR Part 60. The stratification test may be performed using only one pollutant (NO_x or CO) or diluent (O_2).

- If the concentration at each traverse point is within 5.0% of the mean concentration or ±0.5 ppm, subsequent reference method samples may be collected by a single point.
- If the concentration at each traverse point is within 10.0% of the mean concentration or ±1.0 ppm, subsequent reference method samples may be collected using the "short line" at 16.7, 50.0, and 83.3 percent of the measurement line or at 3 points at 0.4, 1.2, and 2.0 meters from the stack wall along the measurement line exhibiting the highest average concentration during the stratification test.

- If the concentration at each traverse point is greater than 10.0% of the mean concentration or greater than ±1.0 ppm, subsequent reference method samples may be collected by using a 12-point traverse during each test run

3.1 CEMS Certification Tests

LBR installed each CEMS according to the manufacturers recommendations and industry standard practices. After re-start of the affected source, LBR will conduct CEMS certification testing in accordance with the applicable performance specifications.

Descriptions of the certification test procedures to be used are presented in the subsections below. The two primary tests to be performed on each monitor are:

1. The 7-day calibration drift test, and
2. The relative accuracy test audit (RATA)

Data recorded by the CEMS may not be used to assess compliance or monitor availability until both certification tests are successfully completed.

3.1.1 7-Day Calibration Error Test

For the CEMS certification, a 7-day calibration drift test will be performed on the stack NO_x, CO and O_2 monitors in accordance with the procedures specified by 40 CFR Part 60, Appendix B, PS-2, §8.3. The test measures each instrument's daily calibration error during seven consecutive unit operating days. The magnitude of the calibration drift is quantified at approximately 24-hour intervals but is evaluated during seven consecutive unit operating days, not necessarily consecutive calendar days.

The 7-day calibration drift test will challenge each monitor once per day at each of two calibration levels while the monitors are operating in their normal sampling modes. The reference gases need not be certified consistent with §7.1 of PS-2. Table 6 provides the acceptable calibration levels for each of the G-3410 stack CEMS.

No manual or automatic adjustments (i.e., resetting the calibration) will be made to the monitors either prior to or during each of the seven daily calibration error checks. Manual or automatic adjustment to the monitor setting are permitted, however, provided that they are made after

taking measurements at both the zero and span-level concentration for that day. If automatic adjustments are made by the monitor, the test will be performed in a manner that will determine and record the extent of the adjustments. The calibration gas will be injected such that it passes through all filters, scrubbers, conditioners, and other monitor components used during normal sampling, and through as much of the sampling probe as practical.

The 7-day calibration drift test results are acceptable if the test results are less than or equal to the levels specified in Table 6 for each monitor. For the NO_x and CO monitor, the calibration drift is calculated as a percentage of the instrument span as follows:

$$CD = \left|\frac{C - M}{S}\right| \times 100$$

Where: CD = Percentage calibration drift based upon instrument span (%)
C = Reference value of zero- or upscale-level calibration gas
M = Actual monitoring system response to the calibration gas
S = Span of the instrument

For the O_2 monitor, the calibration drift is calculated as the absolute value of the mean difference between the reference value and the actual monitoring system response. For the NO_x and O_2 monitors, the calibration drift on each of the seven days must be less than or equal to the levels specified in Table 6. For the CO monitor, the calibration drift on six (6) of the seven days must be less than or equal to the levels specified in Table 6.

Table 6: 7-Day Calibration Drift Performance Specifications

Parameter	Location	Span	Zero-Level	Span-Level	Criteria
NO_x	Stack	50 ppm	0-10 ppm	25-50 ppm	≤2.5% (Each day)
		200 ppm	0-40 ppm	100 – 200 ppm	
CO	Stack	300 ppm	0-60 ppm	150-300 ppm	≤5% (6 of 7 days)
		1200 ppm	0-240 ppm	600-1200 ppm	
O_2	Stack	25%	0-5% O_2	12.5-25% O_2	±0.5 % O_2 (Each Day)

3.1.2 Relative Accuracy Test Audit

To satisfy the RATA requirements for the NO_x CEMS and O_2 measurements, the relative accuracy of a minimum nine-run performance test must be less than or equal to 20% of the mean value of the reference data or less than or equal to 10% of the applicable emission standard for the NO_x CEMS. The NO_x emission standard for G-3410 is 42 ppm_d @15%. To satisfy the RATA requirements for the CO CEMS, the relative accuracy of a minimum nine-run performance test must be less than or equal to 10% of the mean value of the reference data or less than or equal to 5% of the applicable emission standard for the CO CEMS. The CO emission standard for G-3410 is 206.5 ppm_d @15%.

If the average NO_x or CO reference method value during the RATA is less than 50% of the emission standard, an alternative relative accuracy will be calculated using the appropriate emission standard value as the basis rather than the average reference method value during the RATA.

The relative accuracy will be calculated using the results of a minimum of nine test runs and one of the following equations:

$$RA = \frac{\left|\bar{d}\right| + \left|CC\right|}{RM} \; or \; \frac{\left|\bar{d}\right| + \left|CC\right|}{ES}$$

Where:

RA = Relative accuracy
d = Mean absolute value of the differences between the CERM and reference method values
CC = Absolute value of the 2.5% error confidence coefficient
RM = Average reference method value (≥ 50% of equivalent emission standard)
ES = Equivalent emission standard (< 50% of equivalent emission standard)

A minimum of nine 21-minute comparative test runs will be performed for the RATA. During each sample run, a 3-point traverse will be conducted (see Appendix 1 for traverse point locations). A sample will be extracted from the stack effluent through a sample probe, sample conditioning system and sample line to a distribution manifold where a portion of the sample gas will be dispersed to each pollutant and diluent analyzer.

The NO_x and CO CEMS RATA results will be determined on a concentration at specified dilution (i.e., ppm @15% O_2). The concentration at the specified dilution will be calculated as follows:

$$E_{Pol} = ppm_d \times \left(\frac{20.9 - 15}{20.9 - \%O_{2d}}\right)$$

Where: E_{Pol} = Pollutant concentration at a known dilution, ppmd @ 15% O_2
ppm_d = Average pollutant concentration on a dry basis
$\%O_{2d}$ = Diluent concentration on a dry basis

3.2 COMS Certification Tests

LBR installed each COMS according to the manufacturers recommendations and industry standard practices. Consistent with PS-1 §8.1, LBR purchased an instrument that complies with ASTM D6216-98 and obtained a certificate of conformance from the opacity monitor

manufacturer. The COMS was installed at a measurement location that is representative of the total emissions from the affected unit and passing through the centroidal area of the stack.

Descriptions of the certification test procedures to be used are presented in the subsections below. The audit performance tests were grouped into two categories: the field audit performance test (which was conducted by the instrument manufacturer) and the operational test period (which will be conducted after restart).

3.2.1 Field Audit Performance Tests

The field audit performance tests were conducted prior to restart by the manufacturer. As part of the field audit performance tests, the manufacturer assessed the optical alignment of each opacity monitor and demonstrate that the devices are in proper alignment based on manufacturer recommendations.

A calibration error check was performed by using a set of calibrated attenuators representing a low-, mid- and high-level. A total of five non-consecutive readings from each attenuator (i.e., a total of 15 readings) was recorded. Each attenuator was left in place for at least two times the shortest recording interval of the COMS data recorder. For each attenuator level, the mean difference, standard deviation and 95 %confidence coefficient was calculated. The calibration error at each attenuation level is the sum of the absolute mean difference plus 95% confidence coefficient. The calibration error was less than or equal to 3% at each of the three (3) attenuator levels.

A response time check was performed by inserting the high-level attenuating filter five (5) times into the external audit device. For each filter insertion, the upscale time required for the COMS to read a 95% percent step change in the opacity measurement after the insertion of the high-level attenuating filter was recorded. After each removal of the high-level attenuating filter, the downscale response time is the time for the COMS to read 5% of the previous upscale response. The reported upscale and downscale response times are the mean of the five (5) upscale and downscale response time measurements.

A verification of the calculation of the averaging period was conducted by recording the response of the low-, mid- and high-level attenuating filters. Each filter will be inserted for two (2) averaging periods (i.e., 6-minutes) plus 1-minute. The calculated path length corrected opacity value for each attenuator will be compared to the opacity average recorded by the DAS. The DAS recorded opacity average must be within ±2% opacity of the path length corrected certified value for each attenuator.

3.2.2 Operational Test Period

Upon the successful completion of the field audit performance tests, an operational test period of 168-hours will be performed. The operational test period is comprised of the COMS measuring effluent opacity during all periods except for instrument zero and upscale drift checks. The source unit must be operating for at least 50% of the 168-hour test period. No unscheduled maintenance, repair or adjustment to the COMS is allowed during the operational test period, except for automatic zero or upscale calibration adjustments made by the COMS independent of operator intervention or initiation. At the start of the 168-hour operational test period and subsequent 24-hour intervals, the COMS automatic calibration system will initiate both a zero and upscale calibration check. The zero and upscale response will be recorded by the DAS. At the end of the 168-hour operational test period, the mean, standard deviation and the 95% confidence coefficient of both the zero and upscale difference for each 24-hour calibration check. The 24-hour calibration drift error is the sum of the absolute value of the mean difference and the 95% confidence coefficient. The specification for both the zero and upscale 24-hour calibration drift is ±2% opacity.

4.0 SO_2 PERFORMANCE TESTING

During the test program, LBR will determine the sulfur content of the fuel combusted in the turbine. A minimum of three fuel samples will be collected and analyzed for total sulfur content using methods approved in §60.335(b)(10) to demonstrate compliance with the standards of §60.333(b) of 40 CFR Part 60 Subpart GG.

5.0 PROCESS DATA

5.1 CEMS RATA

During the RATA, all data will be electronically logged and printed out by the DAS. In order to appropriately calculate and report the CEMS RATA data, the following process data will be provided by the plant, either manually or by the plant's DAS: (1) date, (2) time, (3) source, (4) operating load, (5) fuel fired/rate, (6) NO_x ppm, (7) CO ppm, (8) O_2 %, (9) NO_x ppm @15 %O_2 and (10) CO ppm @15 %O_2. All testing will be performed while the unit operates at a normal (i.e., > 50% of capacity) production rate under normal process conditions.

5.2 COMS Operation Test Period

During the 168-hour operational test period, all COMS and unit online data will be electronically logged by the DAS. The DAS will document date and time, unit operating load, opacity and daily opacity zero and upscale calibration responses.

6.0 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

The previously described reference methods are very technique oriented. Attempts to minimize any and all factors which can increase test measurement error are performed by implementing a Quality Assurance Program (and their associated procedures) into every segment of the testing activities. The following sections detail all QA/QC procedures to be followed during the test program.

6.1 Sampling Equipment Calibrations

All of the emission testing equipment used will be calibrated according to the procedures outlined in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, EPA-600/4-77-207b.

6.2 Calibration Gases

All calibration gases used during the test program will be EPA Protocol provided by reputable calibration gas vendors. No calibration gas cylinders will be used that have reached or exceeded their expiration date(s), nor will they be used if they contain less than 100 psi of gas. Copies of the calibration gas "certificates of analysis" can be made available on-site during the test program and will be provided in the final test report.

6.3 COMS Attenuation Filters

The calibration attenuators (i.e., neutral density filters) used to conduct the daily calibration drift and calibration error check will be certified following the procedures in either Section 7.1 or Section 7.2 of PS-1.

7.0 TEST REPORTS

7.1 CEMS & COMS Certification Test Report

Upon completion of the test program, a preliminary (draft final) report will be provided to LBR's Environmental Department – Air Group for internal review prior to submitting the final report(s).

The final test report(s) will include the following:

- All certification test results and calculations
- Field test data (produced by RM and facility, where applicable) of the following:
    1. 7-day calibration drift test
    2. RATA
- Source process data
- RM calibration data
- RM QA check results
- Stack information (dimensions and process/data flow diagrams)
- Calibration gas values (RM)
- Calibration gas certificates of analysis (RM)
- Narrative discussion of the test program (including test method procedures)
- COMS related certification data
    - Copy of conformance with ASTM D 6216-98
    - Optical alignment documentation
    - Calibration error results
    - System response time results
    - Documentation of averaging period calculation verification
    - Zero & upscale calibration drift results.

40 CFR Part 60 §60.13(c)(2) requires that the CEMS certification report be submitted **within 60 days** of the completion of the certification testing.

APPENDIX 1

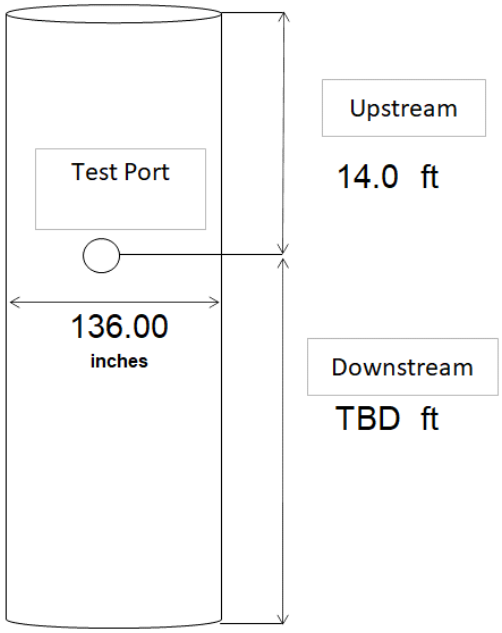
Sample Location Dimensions & Traverse Point Determinations

Client:	**Limetree Bay**
Unit Tested:	**G-3410**
Sampling Location:	**Bypass Stack**
Stack Diameter:	**136.00** inches
Nipple Length:	**3.00** inches
Number of Test Ports:	**4.00**

Distance from Nearest Disturbance:

Upstream:	**14** ft
Downstream:	**TBD** ft

NOx/CO/O2 RATA Traverse	% of Diameter	3-Point
	16.7%	25.75
	50.0%	71.00
	83.3%	116.25

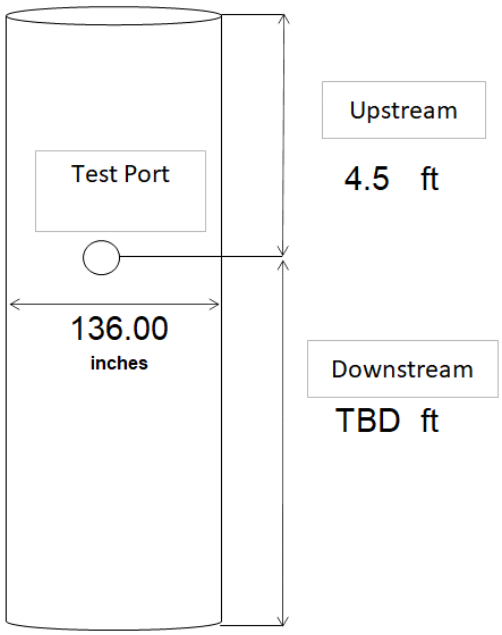


Client:	**Limetree Bay**
Unit Tested:	**G-3410**
Sampling Location:	**Main Stack**
Stack Diameter:	**136.00** inches
Nipple Length:	**3.00** inches
Number of Test Ports:	**4.00**

Distance from Nearest Disturbance:

Upstream:	**4.5** ft
Downstream:	**TBD** ft

NOx/CO/O2 RATA Traverse	% of Diameter	3-Point
	16.7%	25.75
	50.0%	71.00
	83.3%	116.25



Limetree Bay Refining Operating, LLC
Gas Turbine #13 (G-3413 & H-3413)
Compliance Test Plan
40 CFR Part 60

Anticipated Test Dates: August 2020

For

Limetree Bay Terminals, LLC/
Limetree Bay Refining Operating, LLC
#1 Estate Hope
Christiansted, VI 00820

Prepared by:

RTP Environmental Associates, Inc.
304-A Millbrook Road
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1.0 INTRODUCTION

Limetree Bay Terminals, LLC / Limetree Bay Refining Operating, LLC (LBR) is in receipt of Construction Permit STX-924-AC-18 issued by the U.S. Virgin Islands Department of Planning and Natural Resources (VI DPNR). Construction Permit STX-924-AC-18 permits the modification of certain process units in order to resume refining operations at the LBR refinery which were idled under previous ownership in 2011 and 2012. Consistent with the permit application, LBR shall continue to comply with the applicable regulatory requirements as defined in Title V Permit No. STX-TV-003-10 for all emission units affected but not modified by the construction project (the "MARPOL" project). A revised Title V Permit application was submitted on July 17, 2019. At the time of preparation and submittal of this test plan, a final revision of Title V permit has not been received.

LBR has prepared the following compliance test plan to meet the notification requirements for required performance test(s) and the continuous emissions monitoring system (CEMS) performance evaluation test(s) ("CEMS certification test") as set forth by the Environmental Protection Agency (EPA) in Title 40 of the Code of Federal Regulations Part 60 (40 CFR Part 60) §60.7(a)(5), Title V Permit No. STX-TV-003-10, and the Virgin Islands Air Code (CVIR 12-009-000) Section 206-25(b). This compliance plan discusses the stack CEMS certification testing as well as the performance testing that will take place upon re-start of GT-13 (Source ID G-3413 & H-3413).

The gaseous CEMS measure the emissions of nitrogen oxides (NO_x) and carbon monoxide (CO) in units of parts per million on a dry basis at a dilution of 15-percent oxygen (ppm @15 $\%O_2$). This test plan outlines the procedures to be followed, the test methods to be used, and any requested deviations from either the specific conditions or limitations as listed in Air Permit No. STX-TV-003-10, or from the test methods themselves. Table 1 provides a summary of the relative accuracy criteria for each component being assessed as part of the RATA.

Table 1: Relative Accuracy Criteria

Parameter	Units	Relative Accuracy Specification	
		RM Mean ≥50% of Emission Standard	RM Mean <50% of Emission Standard
NO_x	ppmvd @ 15% O_2	20% of RM Mean	10% of Emission Standard
CO	ppmvd @ 15% O_2	10% of RM Mean	5% of Emission Standard
Diluent CEMS		**Primary Criteria**	**Alternative Criteria**
O_2	$\%_d$	20% of RM Mean	±1.0% Absolute Difference

Mostardi-Platt is anticipated to perform the EPA reference method (RM) testing for this test project and provide the written report summarizing the results of the test program. Overall project oversight and test protocol development will be provided by RTP Environmental Associates (RTP). Table 2 contains the contact information for all relevant parties.

Table 2: Test Program Contact List

Contact	Company	Address	Phone/Email
Ms. Maria Aloyo	LBR	1 Estate Hope Christiansted, VI 00820-5652	340-692-3781 MAloyo@lbenergy.com
Mr. Stuart Burton	Mostardi-Platt	888 Industrial Drive Elmhurst, IL	630-993-2100 SBurton@mp-mail.com
Ms. Bethany White	RTP	304A West Millbrook Rd. Raleigh, NC 27609	919-578-4876 bwhite@rtpenv.com

The test program is scheduled to begin no sooner than August 21, 2020. A specific test schedule will be determined based on the operating status of the various units to be tested at the facility during the test program. A specific test schedule will be provided to the Administrator upon request.

Appendix 1 contains Reference Method (RM) 1 site location information for GT-13, sample traverse points for the RM 3A, 7E and 10 for each test run.

1.1 TIMING OF TESTS

CEMS certification tests were conducted under previous ownership in accordance with 40 CFR Subpart A §60.13(b). As a result of source idling, the required quality assurance and quality control activities for the CEMS were not conducted. Consistent with Condition 2.4.13.5 of the

revised Title V permit application, a RATA will be conducted within 120 calendar days after resuming Regular Operations where "Regular Operations" means that the idled unit has reached sustained operations and is now operating as intended in support of the output of product(s) or services after having been idled. In order to resume operation of the CEMS, certain major components[1] of the previously certified CEMS system have been replaced. As such, LBR intends to conduct a complete certification of the CEMS system in lieu of performing only a RATA for the system.

The CEMS certification test may be performed while combusting site-produced fuel gas, purchased propane, oil, or a combination thereof. The certification of the H_2S CEMS which measures the common source of fuel gas for GT-13 will not be conducted until site-produced fuel gas is available for combustion[2]. A separate notification will be prepared to summarize the H_2S CEMS certification tests.

[1] Though not specifically identified in rule text, LBR considers complete replacement of a probe that changes the sampling location, umbilical, or analyzer as major components for which recertification of the CEMS would be prudent.

[2] Until such time that site-produced fuel gas is combusted, GT-13 is not a fuel gas combustion device as defined 40 CFR Subpart J §60.101 and is not subject to the H_2S monitoring requirements of 40 CFR Subpart J §60.105(a)(4).

2.0 FACILITY DESCRIPTION

2.1 Facility Location

The LBR facility is located at 1 Estate Hope in Christiansted, St. Croix, Virgin Islands.

2.2 Source Descriptions

GT-13 is a 356.0 mmBtu/hr gas combustion turbine (G-3413) combined with a heat recovery steam generator equipped with a 270.1 mmBtu/hr duct burner (H-3413) that commenced construction, modification, or reconstruction after February 18, 2005 and as such is subject to the nitrogen oxide (NO_x) and sulfur dioxide (SO_2) emission limits of 40 CFR Part 60 Subpart KKKK. G-3413 combusts site-produced refinery fuel gas ("byproduct/waste" gas), site-produced or purchased propane and/or butane and fuel oil. H-3413 can only fire site-produced refinery fuel gas ("byproduct/waste" gas), site-produced or purchased propane and/or butane. GT-13 is equipped with a selective catalytic reduction (SCR) module that is used to control nitrogen oxides emissions during unit operations with the exceptions of unit start-up and shutdown. GT-13 is subject to the NO_x and carbon monoxide (CO) emission limits specified Title V Permit No. STX-TV-003-10[3]. The monitors installed on GT-13 operate on a time-share basis between the main stack and the bypass stack. A single set of monitors is used to measure emissions from either the main stack or bypass stack depending on which stack is active at any given time.

As a fuel gas combustion device, G-3414 and H-3413 are subject to the SO_2 emission limit is specified in 40 CFR Part 60, Subpart J. Consistent with 40 CFR Part 60, Subpart J §60.105(a)(4), LBR has elected to install an instrument for continuously monitoring and recording the concentration (dry basis) of hydrogen sulfide (H_2S) in fuel gas at common fuel source locations in lieu of installing a stack SO_2 monitor for GT-13.

2.3 Reference Method Sampling Location

The CEMS monitoring and stack testing locations (as well as other pertinent, descriptive information) for GT-13 are described in Table 3. Appendix 1 of this test plan contains the stack diagrams and dimensions for GT-13. All stack dimensions will be verified for completeness and accuracy at the time of testing.

[3] Permit limits are equivalent or stricter than those specified in 40 CFR Part 60, Subpart KKKK.

Table 3: Stack Testing Locations – GT-13

Test Location	Stack Exit Height (feet)	Test Port Height (feet)	Downstream (feet)	Upstream (feet)	Stack ID (feet)
Main Stack CEMS & RM	79	72.8	TBD	6.2	9.9
Bypass Stack CEMS & RM	76	69.5	TBD	6.5	10.6

2.4 Source CEMS Description

LBR has installed NO_x and O_2 CEMS to comply with the monitoring requirements of 40 CFR Part 60, Subpart KKKK and Title V Permit No. STX-TV-003-10 on the stacks serving GT-13. LBR has installed CO CEMS to comply with the monitoring requirements of Title V Permit No. StX-TV-003-10 on the stacks serving GT-13. Table 4 provides the monitor location, manufacturer, model, serial number, and span of each CEMS for GT-13.

Table 4: CEMS Monitor Information – GT-13

Monitor	Location	Manufacturer/Model	Serial Number	Span
NO_x	Bypass & HRSG	Thermo Environmental Instruments 42iQ	1190952416	50 ppm 200 ppm
CO	Bypass & HRSG	Thermo Environmental Instruments 48iQ	1191032548	300 ppm 1200 ppm
O_2	Bypass & HRSG	Servomex 1440	3802	25%

The NO_x, CO and O_2 emissions will be measured at both the GT-13 HRSG and Bypass stacks using a straight (dry)-extractive sampling system. The straight extractive monitoring system withdraws a sample from the stack through a single port extraction sample probe and into a moisture removal system (which can either be at the sampling location or in the CEMS shelter near the base of the stack). Once the moisture is removed, the dry sample is transported to the monitor(s) which are located in an environmentally controlled shelter. Sample probes are installed on both the main and bypass exhaust stacks that feed to a common set of monitors. The data acquisition system (DAS) receives a signal from the unit noting the damper position that directs flow to the either the main or bypass exhaust stacks. The range of the NO_x and CO

monitors were established consistent with the specifications in Performance Specifications (PS) 2 and 4 and the anticipated emissions during normal operation and startup periods.

The NO_x, CO and O_2 CEMS were installed on the HRSG and Bypass stacks serving GT-13. The stack measurement location was selected at an accessible location where the measurements are directly representative of the emissions from GT-13. Consistent with the recommendations of §8.1.2 of 40 CFR Part 60, Appendix B, PS-2, the CEMS measurement location is at least 2 equivalent diameters downstream from the nearest control device, point of pollutant generation or other point at which a change in the pollutant concentration is likely to occur and at least a half equivalent diameter upstream from the effluent exhaust.

2.5 Applicable Performance Specifications

LBR conducted the installation of the CEMS and intends to conduct an initial certification of the CEMS in accordance with the manufacturers' recommendations as well as the applicable PS of 40 CFR Part 60 Appendix B. Table 5 summarizes the applicable PS for each CEMS.

Table 5: Performance Specifications

Parameter	Location	Performance Specification
NO_x	Main & Bypass	PS-2
CO	Main & Bypass	PS-4
O_2	Main & Bypass	PS-3

3.0 CEMS CERTIFICATION TEST PROCEDURES

This section includes a discussion of the certification test procedures and test methods that will be used for performing the gaseous CEMS certification test procedures, including the relative accuracy test audit (RATA) test methods. The CEMS will be certified in accordance with 40 CFR Part 60, Appendix B, PS 2, 4 and 3. Unless stated otherwise, all stack sampling will be performed in accordance with the applicable test methods as described herein. Any deviations from the standard procedures are clearly noted in the following subsections. The following reference methods will or may be utilized during the test program:

- Reference Method 3A Determination of O_2 and CO_2 (Instrumental Procedure)
- Reference Method 7E Determination of NO_x (Instrumental Procedure)
- Reference Method 10 Determination of CO (Instrumental Procedure)

All RM analyzers used during this test program will be those models using the analysis techniques typically seen in industry on these types of sources.

3.1 CEMS Certification Tests

LBR installed each CEMS according to the manufacturers recommendations and industry standard practices. After re-start of the affected source, LBR will conduct CEMS certification testing in accordance with the applicable performance specifications.

Descriptions of the certification test procedures to be used are presented in the subsections below. The two primary tests to be performed on each monitor are:

1. The 7-day calibration drift test, and
2. The relative accuracy test audit (RATA)

Data recorded by the CEMS may not be used to assess compliance or monitor availability until both certification tests are successfully completed.

3.1.1 7-Day Calibration Error Test

For the CEMS certification, a 7-day calibration drift test will be performed on the stack NO_x, CO and O_2 monitors in accordance with the procedures specified by 40 CFR Part 60, Appendix B, PS-2, §8.3. The test measures each instrument's daily calibration error during seven consecutive unit operating days. The magnitude of the calibration drift is quantified at approximately 24-

hour intervals but is evaluated during seven consecutive unit operating days, not necessarily consecutive calendar days.

The 7-day calibration drift test will challenge each monitor once per day at each of two calibration levels while the monitors are operating in their normal sampling modes. The reference gases need not be certified consistent with §7.1 of PS-2. Table 6 provides the acceptable calibration levels for each of the GT-13 stack CEMS.

No manual or automatic adjustments (i.e., resetting the calibration) will be made to the monitors either prior to or during each of the seven daily calibration error checks. Manual or automatic adjustment to the monitor setting are permitted, however, provided that they are made after taking measurements at both the zero and span-level concentration for that day. If automatic adjustments are made by the monitor, the test will be performed in a manner that will determine and record the extent of the adjustments. The calibration gas will be injected such that it passes through all filters, scrubbers, conditioners, and other monitor components used during normal sampling, and through as much of the sampling probe as practical.

The 7-day calibration drift test results are acceptable if the test results are less than or equal to the levels specified in Table 6 for each monitor. For the NO_x and CO monitor, the calibration drift is calculated as a percentage of the instrument span as follows:

$$CD = \left|\frac{C - M}{S}\right| \times 100$$

Where:
- CD = Percentage calibration drift based upon instrument span (%)
- C = Reference value of zero- or upscale-level calibration gas
- M = Actual monitoring system response to the calibration gas
- S = Span of the instrument

For the O_2 monitor, the calibration drift is calculated as the absolute value of the mean difference between the reference value and the actual monitoring system response. For the NO_x and O_2 monitors, the calibration drift on each of the seven days must be less than or equal to the levels

specified in Table 6. For the CO monitor, the calibration drift on six (6) of the seven days must be less than or equal to the levels specified in Table 6.

Table 6: 7-Day Calibration Drift Performance Specifications

Parameter	Location	Span	Zero-Level	Span-Level	Criteria
NO_x	Stack	50 ppm	0-10 ppm	25-50 ppm	≤2.5% (Each day)
		200 ppm	0-40 ppm	100 – 200 ppm	
CO	Stack	300 ppm	0-60 ppm	150-300 ppm	≤5% (6 of 7 days)
		1200 ppm	0-240 ppm	600-1200 ppm	
O_2	Stack	25%	0-5% O_2	12.5-25% O_2	±0.5 % O_2 (Each Day)

3.1.2 Relative Accuracy Test Audit

To satisfy the RATA requirements for the NO_x CEMS and O_2 measurements, the relative accuracy of a minimum nine-run performance test must be less than or equal to 20% of the mean value of the reference data or less than or equal to 10% of the applicable emission standard for the NO_x CEMS. To satisfy the RATA requirements for the CO CEMS, the relative accuracy of a minimum nine-run performance test must be less than or equal to 10% of the mean value of the reference data or less than or equal to 5% of the applicable emission standard for the CO CEMS. Table 7 provides a summary of the applicable emission standards for each GT-13 sample location.

Table 7: Summary of Emission Limits – GT-13

Parameter	Location	Fuel	ppmd @ 15% O_2	lb/mmBtu
NO_x	Bypass	Gas	42	0.1601
		Oil	42	0.1601
	HRSG	Gas	13	0.0497
		Oil	13	0.0640
CO	GT-13	Any Fuel	NA	0.0715[4]

If the average NO_x or CO reference method value during the RATA is less than 50% of the emission standard, an alternative relative accuracy will be calculated using the appropriate emission standard value as the basis rather than the average reference method value during the RATA.

The relative accuracy will be calculated using the results of a minimum of nine test runs and one of the following equations:

$$RA = \frac{|\bar{d}| + |CC|}{RM} \; or \; \frac{|\bar{d}| + |CC|}{ES}$$

Where:

RA = Relative accuracy
d = Mean absolute value of the differences between the CERM and reference method values
CC = Absolute value of the 2.5% error confidence coefficient
RM = Average reference method value (≥ 50% of equivalent emission standard)
ES = Equivalent emission standard (< 50% of equivalent emission standard)

A minimum of nine 21-minute comparative test runs will be performed for the RATA. During each sample run, a 3-point traverse will be conducted (see Appendix 1 for traverse point locations). A sample will be extracted from the stack effluent through a sample probe, sample conditioning system and sample line to a distribution manifold where a portion of the sample gas will be dispersed to each pollutant and diluent analyzer.

[4] CO has an annual limit of the 196 tons per year. An equivalent emission standard was calculated by converting the tons per year limit to pounds per hour multiplying by 2,000 lb/ton and dividing by an assumed 8,760 hours per year (i.e., 44.75 lb/hr). To get in units of mass emission rate. The mass is divided by the combined heat input rating of G-3413 and H-3413 (i.e., 626.1 mmBtu/hr) to yield a conservative equivalent mass emission rate limit of 0.0715 lb/mmBtu.

The NO_x and CO CEMS RATA results will be determined on a concentration at specified dilution (i.e., ppm @15% O_2). The concentration at the specified dilution will be calculated as follows:

$$E_{Pol} = ppm_d \times \left(\frac{20.9 - 15}{20.9 - \%O_{2d}}\right)$$

Where: E_{Pol} = Pollutant concentration at a known dilution, ppmd @ 15% O_2
ppm_d = Average pollutant concentration on a dry basis
$\%O_{2d}$ = Diluent concentration on a dry basis

NO_x and CO CEMS RATA results will also be determined on a mass emission rate (i.e., lb/mmBtu) basis. The mass emission rate will be calculated as follows:

$$E_{nox} = ppm_d \times F_d \times K \times \left(\frac{20.9}{20.9 - \%O_{2d}}\right)$$

Where: E_{nox} = Pollutant mass emission rate, lb/mmBtu
ppm_d = Average pollutant concentration on a dry basis
F_d = Dry basis fuel factor (scf/mmBtu)
K = ppm-to-lb/scf conversion factor
$\%O_{2d}$ = Diluent concentration on a dry basis

Table 8: Summary of Pollutant Conversion Factors

Component	Conversion Factor (ppm to lb/scf)
NO_x	l.194e-7
CO	7.27e-8

Conversion to lb/mmBtu will be accomplished utilizing appropriate "F factors" (ratios of combustion gas volumes to heat inputs) determined by either fuel analysis consistent with RM 19 (for fuel gas) or standard F factors (for propane or butane combustion). The F factor will be determined using Equation 19-13 of Reference Method 19. On-site analysis of fuel gas samples will be performed using ASTM D-1945 / UOP 539 and ASTM D-6667-01.

4.0 PROCESS DATA

4.1 CEMS RATA

During the RATA, all data will be electronically logged and printed out by the DAHS. In order to appropriately calculate and report the CEMS RATA data, the following process data will be provided by the plant, either manually or by the plant's DAHS: (1) date, (2) time, (3) source, (4) operating load, (5) fuel fired/rate, (6) NO_x ppm, (7) CO ppm, (8) O_2 %, (9) NO_x ppm @15 %O_2 and (10) CO ppm @15 %O_2. All testing will be performed while the unit operates at a normal (i.e., > 50% of capacity) production rate under normal process conditions.

5.0 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

The previously described reference methods are very technique oriented. Attempts to minimize any and all factors which can increase test measurement error are performed by implementing a Quality Assurance Program (and their associated procedures) into every segment of the testing activities. The following sections detail all QA/QC procedures to be followed during the test program.

5.1 Sampling Equipment Calibrations

All of the emission testing equipment used will be calibrated according to the procedures outlined in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, EPA-600/4-77-207b.

5.2 Calibration Gases

All calibration gases used during the test program will be EPA Protocol provided by reputable calibration gas vendors. No calibration gas cylinders will be used that have reached or exceeded their expiration date(s), nor will they be used if they contain less than 100 psi of gas. Copies of the calibration gas "certificates of analysis" can be made available on-site during the test program and will be provided in the final test report.

6.0 TEST REPORTS

6.1 CEMS Certification Test Report

Upon completion of the test program, a preliminary (draft final) report will be provided to LBR's Environmental Department – Air Group for internal review prior to submitting the final report(s).

The final test report(s) will include the following:

- All certification test results and calculations
- Field test data (produced by RM and facility, where applicable) of the following:
    1. 7-day calibration drift test
    2. RATA
- Source process data
- RM calibration data
- RM QA check results
- Stack information (dimensions and process/data flow diagrams)
- Calibration gas values (RM)
- Calibration gas certificates of analysis (RM)
- Narrative discussion of the test program (including test method procedures)

40 CFR Part 60 §60.13(c)(2) requires that the CEMS certification report be submitted **within 60 days** of the completion of the certification testing.

APPENDIX 1

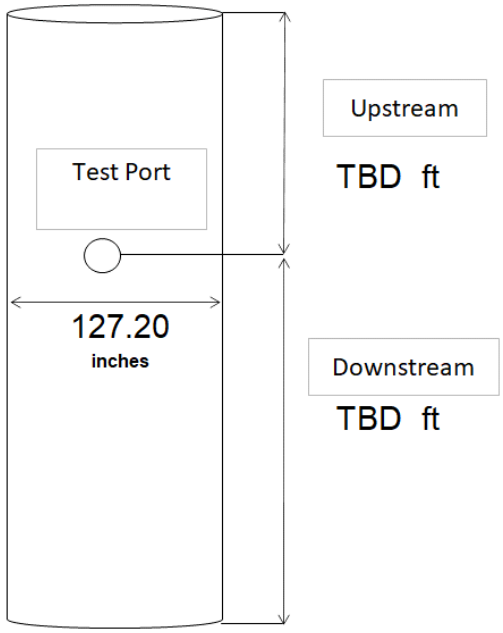
Sample Location Dimensions & Traverse Point Determinations

Client:	**Limetree Bay**
Unit Tested:	**G-3413**
Sampling Location:	**Bypass Stack**
Stack Diameter:	**127.20** inches
Nipple Length:	**0.00** inches
Number of Test Ports:	**4.00**

Distance from Nearest Disturbance:

Upstream:	**TBD** ft
Downstream:	**TBD** ft

NOx/CO/O2 RATA Traverse	% of Diameter	3-Point
	16.7%	21.25
	50.0%	63.50
	83.3%	106.00

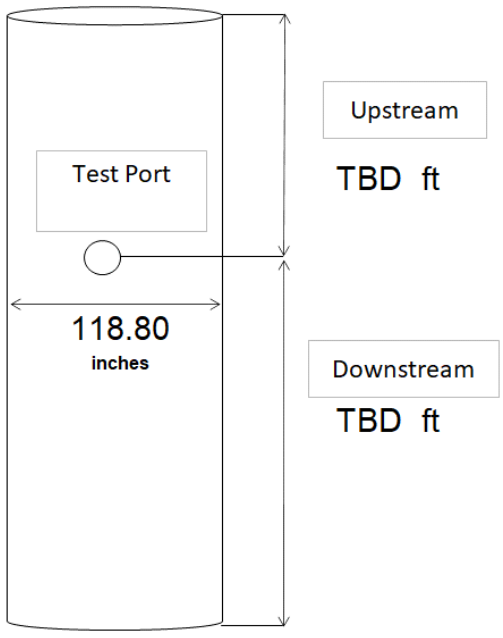


Client:	**Limetree Bay**
Unit Tested:	**G-3413**
Sampling Location:	**HRSG Stack**
Stack Diameter:	**118.80** inches
Nipple Length:	**0.00** inches
Number of Test Ports:	**4.00**

Distance from Nearest Disturbance:

Upstream:	**TBD** ft
Downstream:	**TBD** ft

NOx/CO/O2 RATA Traverse	% of Diameter	3-Point
	16.7%	19.75
	50.0%	59.50
	83.3%	99.00



Limetree Bay Refining Operating, LLC
East Fuel Gas Mixing Drums
(D-3307 & D-3354)
Compliance Test Plan
40 CFR Part 60

Anticipated Test Dates: August 2020

For

Limetree Bay Refining Operating, LLC
#1 Estate Hope
Christiansted, VI 00820

Prepared by:

RTP Environmental Associates, Inc.
304-A Millbrook Road
Raleigh, NC 27609

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1.0 INTRODUCTION

Limetree Bay Terminals, LLC / Limetree Bay Refining Operating, LLC (LBR) is in receipt of Construction Permit STX-924-AC-18 issued by the U.S. Virgin Islands Department of Planning and Natural Resources (VI DPNR). Construction Permit STX-924-AC-18 permits the modification of certain process units in order to resume refining operations at the LBR refinery which were idled under previous ownership in 2011 and 2012. Consistent with the permit application, LBR shall continue to comply with the applicable regulatory requirements as defined in Title V Permit No. STX-TV-003-10 for all emission units affected but not modified by the construction project (the "MARPOL" project). A revised Title V Permit application was submitted on July 17, 2019. At the time of preparation and submittal of this test plan, a final revision of Title V permit has not been received. LBR is also in receipt of the First Modification of the facility Consent Decree (Civ. No. 1:11-cv-00006), hereafter referred to as the facility Consent Decree.

LBR has prepared the following test plan to meet the notification requirements for required performance test(s) as set forth by §60.106(e)(1) of 40 CFR Part 60, Subpart J (Subpart J). This test plan also addresses the continuous emissions monitoring system (CEMS) performance evaluation test(s) ("CEMS certification test") as set forth by the Environmental Protection Agency (EPA) in Title 40 of the Code of Federal Regulations Part 60 (40 CFR Part 60) §60.7(a)(5), §60.105(a)(4), §60.8(d), Title V Permit No. STX-TV-003-10, and the Virgin Islands Air Code (CVIR 12-009-000) Section 206-25(b). This compliance plan discusses the CEMS certification testing as well as the performance testing that will take place upon re-start of the East Fuel Gas system, hereafter referred to as EFG. Consistent with the requirements of §60.105(a)(4)(ii), LBR has elected to monitor at only one location to reflect the concentration of H_2S in the fuel gas being burned at multiple fuel gas combustion devices.

The gaseous CEMS measure the concentration of hydrogen sulfide (H_2S) in units of parts per million by volume, dry basis(ppmvd) of the common fuel gas header stream as required by §60.105(a)(4).

This test plan outlines the procedures to be followed, the test methods to be used, and any requested deviations from either the specific conditions or limitations as listed in Air Permit No.

STX-TV-003-10, or from the test methods themselves. Table 1 provides a summary of the relative accuracy criteria for each component being assessed as part of the RATA.

Table 1: Relative Accuracy Criteria

Parameter	Units	Relative Accuracy Specification	
		RM Mean ≥50% of Emission Standard	RM Mean <50% of Emission Standard
H_2S	ppmvd	20% of RM Mean	10% of Emission Standard

Mostardi-Platt is anticipated to perform the EPA reference method (RM) testing for this test project and provide the written report summarizing the results of the test program. Overall project oversight and test protocol development will be provided by RTP Environmental Associates (RTP). Table 2 contains the contact information for all relevant parties.

Table 2: Test Program Contact List

Contact	Company	Address	Phone/Email
Ms. Maria Aloyo	LBR	1 Estate Hope Christiansted, VI 00820-5652	340-692-3781 MAloyo@lbenergy.com
Mr. Stuart Burton	Mostardi-Platt	888 Industrial Drive Elmhurst, IL	630-993-2100 SBurton@mp-mail.com
Ms. Bethany White	RTP	304A West Millbrook Rd. Raleigh, NC 27609	919-578-4876 bwhite@rtpenv.com

The test program is scheduled to begin no sooner than August 21, 2020. A specific test schedule will be determined based on the operating status of the various units to be tested at the facility during the test program. A specific test schedule will be provided to the Administrator upon request.

Appendix 1 contains a photo of the CEMS probe location information for the EFG common fuel gas header. Due to health and safety concerns, sampling at the fuel gas header with traversing will not be performed. Rather, RM sampling will be performed at a pressurized sampling tap near the CEMS monitor location.

1.1 TIMING OF TESTS

An initial performance test demonstrating compliance with the H_2S standard of Subpart J will be performed as required by §60.106(e)(1). The initial performance test will be conducted in conjunction with the H_2S RATA for the source. Consistent with Appendix L of the draft

Consent Decree, the demonstration of compliance will be achieved not later than 60 days after achieving the maximum production rate at which the affected facility will be operated, or no later than 180 days after initial Restart, whichever comes first. For a fuel combustion system, restart is resumption of operation while combusting fuel gas.

The monitoring requirements of Subpart J were applicable but were on a delayed compliance schedule prior to source idling. As such, CEMS certification tests were not previously conducted in accordance with 40 CFR Subpart A §60.13(b). Consistent with Appendix L of the draft Consent Decree, the demonstration of compliance will be achieved not later than 60 days after achieving the maximum production rate at which the affected facility will be operated, or no later than 180 days after initial Restart, whichever comes first. For a fuel combustion system, restart is resumption of operation while combusting fuel gas.

2.0 FACILITY DESCRIPTION

2.1 Facility Location

The LBR facility is located at 1 Estate Hope in Christiansted, St. Croix, Virgin Islands.

2.2 Source Descriptions

The EFG Mixing Drums (D-3307 and D-3354) location is a common fuel gas location that is representative of the "east fuel gas" that is combusted in various units throughout the refinery. Since each combustion unit is subject to the monitoring requirements of Subpart J, a common fuel header location has been selected. The following down-stream combustion units use the H_2S measurement from the EFG CEMS to demonstrate compliance with the monitoring requirements of Subpart J:

- B-3303, B-3304
- G-3407
- 5 CDU Heaters (H-3101A, H-3101B)
- #3 VAC Heaters (H-4201, H-4202)
- #3 PLAT Heaters (H-4401, H-4402)
- #4 PLAT Heaters (H-5401, H-5402, H-5451, H-5452, H-5453, H-5454, H-5455)
- #6 DD Heaters and Compressors (H-4601A, H-4601B, H-4602, C-4601A/B/C)
- #7DD Heaters (H-4301A, H-4301B, H-4302)
- #9 DD Heaters (H-5301A and H-5302)
- East Incinerator (H-4745)

2.3 Reference Method Sampling Location

Unlike traditional stack testing, the sampling point for the EFG monitoring system is located in a horizontal section of the fuel gas header. Due to health and safety concerns, it is not possible conduct independent reference method sample extraction from this location. As such, consistent with Alt-010, the reference method sample will be collected from a point near the centroid of the header. The reference method sample will be extracted through the same sample probe and sample line that is used for continuous monitoring purposes. The reference method sample will be extracted at the ground level before continuous monitoring.

The RM location and CEMS location are at least two equivalent diameters downstream from the point at which pollutant concentration changes occur and at least a half equivalent diameter upstream from the effluent exhaust. All stack dimensions will be verified for completeness and accuracy at the time of testing. Appendix 1 contains a photo of the CEMS probe location information for EFG.

2.4 Source CEMS Description

LBR has installed a UV-VIS spectrometer to comply with the monitoring requirements of 40 CFR Part 60, Subpart J on the EFG common header. Table 3 provides the monitor location, manufacturer, model, serial number, and span of the CEMS for EFG.

Table 3: CEMS Monitor Information – EFG

Monitor	Location	Manufacturer/Model	Serial Number	Span
H_2S	EFG Header	Applied Analytics OMA-300	AA801716	300 ppm

The H_2S, of the EFG header gas will be measured using hot/wet extractive sampling system. The straight extractive monitoring system withdraws a sample from the stack through a single port extraction sample probe and through a membrane separator that removes moisture. Once the moisture is removed, the dry sample is transported to the monitor. The range of the H_2S monitor was established consistent with the requirements of §60.105(a)(4)(i) of 40 CFR Part 60, Subpart J.

The sample probe was installed on the fuel header serving D-3307 and D-3354. The measurement location was selected at an accessible location where the measurements are directly representative of the fuel entering the east fuel gas mixing drums. Consistent with the recommendations of §8.1.2 of 40 CFR Part 60, Appendix B, PS-2, the CEMS measurement location is at least 2 equivalent diameters downstream from the nearest control device, point of pollutant generation or other point at which a change in the pollutant concentration is likely to occur and at least a half equivalent diameter upstream from the effluent exhaust.

2.5 Applicable Performance Specifications

LBR conducted the installation of the CEMS and intends to conduct an initial certification of the CEMS in accordance with the manufacturers' recommendations as well as the applicable Performance Specifications (PS) of 40 CFR Part 60 Appendix B. Table 4 summarizes the applicable PS for each CEMS.

Table 4: Performance Specifications

Parameter	Location	Performance Specification
H_2S	EFG Header	PS-7

3.0 CERTIFICATION TEST PROCEDURES

This section includes a discussion of the certification test procedures and test methods that will be used for performing the gaseous CEMS certification test procedures, including the relative accuracy test audit (RATA) test methods. The CEMS will be certified in accordance with 40 CFR Part 60, Appendix B, Performance Specifications (PS) 7 for H_2S. Unless stated otherwise, all stack sampling will be performed in accordance with the applicable test methods as described herein. Any deviations from the standard procedures are clearly noted in the following subsections. The following reference methods will or may be utilized during the test program:

- Reference Method 11 Determination of H_2S (Midget Impinger Procedure)

3.1 CEMS Certification Tests

LBR installed each CEMS according to the manufacturers recommendations and industry standard practices. After re-start of the affected source, LBR will conduct CEMS certification testing in accordance with the applicable performance specifications.

Descriptions of the certification test procedures to be used are presented in the subsections below. The two primary tests to be performed on each monitor are:

1. The 7-day calibration drift test, and
2. The relative accuracy test audit (RATA)

Data recorded by the CEMS may not be used to assess compliance or monitor availability until both certification tests are successfully completed.

3.1.1 7-Day Calibration Error Test

For the CEMS certification, a 7-day calibration drift test will be performed on the H_2S monitor in accordance with the procedures specified by 40 CFR Part 60, Appendix B, PS-7 as detailed in PS-2 §8.3. The test measures each instrument's daily calibration error during seven consecutive unit operating days. The magnitude of the calibration drift is quantified at approximately 24-hour intervals but is evaluated during seven consecutive unit operating days, not necessarily consecutive calendar days.

The 7-day calibration drift test will challenge the H_2S monitor once per day at each of two calibration levels while the monitor is operating in their normal sampling modes. The reference gases need not be certified consistent with §7.1 of PS-2 as referenced in PS-7 and 5. Table 6 provides the acceptable calibration levels for the EFG CEMS.

No manual or automatic adjustments (i.e., resetting the calibration) will be made to the monitors either prior to or during each of the seven daily calibration error checks. Manual or automatic adjustment to the monitor setting are permitted, however, provided that they are made after taking measurements at both the zero and span-level concentration for that day. If automatic adjustments are made by the monitor, the test will be performed in a manner that will determine and record the extent of the adjustments. The calibration gas will be injected such that it passes through all filters, scrubbers, conditioners, and other monitor components used during normal sampling, and through as much of the sampling probe as practical.

The 7-day calibration drift test results are acceptable if the test results are less than or equal to the levels specified in Table 6 for each monitor. The calibration drift is calculated as a percentage of the instrument span as follows:

$$CD = \left|\frac{C - M}{S}\right| \times 100$$

Where:
- CD = Percentage calibration drift based upon instrument span (%)
- C = Reference value of zero- or upscale-level calibration gas
- M = Actual monitoring system response to the calibration gas
- S = Span of the instrument

The calibration drift on each of the seven days must be less than or equal to the levels specified in Table 5.

Table 5: 7-Day Calibration Drift Performance Specifications

Parameter	Location	Span	Zero-Level	Span-Level	Criteria
H_2S	EFG Header	300 ppm	0-60 ppm	150-300 ppm	≤5% (6 out of 7 days)

3.1.2 Relative Accuracy Test Audit

To satisfy the RATA requirements for the H_2S CEMS, the relative accuracy of a minimum nine-run performance test must be less than or equal to 20% of the mean value of the reference data or less than or equal to 10% of the applicable emission standard for the H_2S CEMS. The H_2S emission standard for EFG is 162 ppmvd.

The relative accuracy will be calculated using the results of a minimum of nine test runs and one of the following equations:

$$RA = \frac{\left|\bar{d}\right| + \left|CC\right|}{RM} \; or \; \frac{\left|\bar{d}\right| + \left|CC\right|}{ES}$$

Where:

RA = Relative accuracy
d = Mean absolute value of the differences between the CERM and reference method values
CC = Absolute value of the 2.5% error confidence coefficient
RM = Average reference method value (≥ 50% of equivalent emission standard)
ES = Equivalent emission standard (< 50% of equivalent emission standard)

Consistent with Alt-010 the sample will be extracted near the centroid of the EFG header and will be transported using the same sample probe and sample line that is used for the continuous monitoring system. The sampling time and volume shall be at least 10 minutes and 0.35 dscf. Two samples of equal sampling times will be taken at about 1 hour intervals and the arithmetic average of the two samples shall constitute a run. A minimum of nine comparative test runs will be performed for the H_2S RATA.

4.0 Performance Testing

4.1 H_2S Performance Test

A H_2S performance test will be performed on EFG header in accordance with 40 CFR Subpart J. Consistent with §60.106(e)(1), LBR will determine the H_2S content from the EFG header using RM-11. In accordance with §60.104((j)(4)(i) the sampling time and sample volume must be at least 10 minutes and 0.35 dscf. Two samples of equal sampling times must be taken at about - hour intervals. The arithmetic average of these two samples constitutes a run. A minimum of three one-hour runs will be performed and will be averaged to demonstrate compliance with the Subpart J H_2S emission limitation. LBR may elect to use RATA test runs meeting the requirements of this paragraph in place of a single performance test run.

5.0 PROCESS DATA

5.1 CEMS RATA

During the RATA, all data will be electronically logged and printed out by the DAHS. In order to appropriately calculate and report the CEMS RATA data, the following process data will be provided by the plant, either manually or by the plant's DAHS: (1) date, (2) time, (3) source, and (4) H_2S ppm. All testing will be performed under normal process conditions. For the purposes of testing, normal process conditions will be anytime that any fuel gas is transferred in the EFG header.

5.2 Performance Tests

In order to appropriately report the performance test data, the following process data will be provided by the plant, either manually or by the plant's DAHS: (1) date, (2) time, (3) source, and (4) EFG flow rate.

6.0 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

The previously described reference methods are very technique oriented. Attempts to minimize any and all factors which can increase test measurement error are performed by implementing a Quality Assurance Program (and their associated procedures) into every segment of the testing activities. The following sections detail all QA/QC procedures to be followed during the test program.

6.1 Sampling Equipment Calibrations

All of the emission testing equipment used will be calibrated according to the procedures outlined in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, EPA-600/4-77-207b.

6.2 Calibration Gases

All calibration gases used during the test program will be EPA Protocol provided by reputable calibration gas vendors. No calibration gas cylinders will be used that have reached or exceeded their expiration date(s), nor will they be used if they contain less than 100 psi of gas. Copies of the calibration gas "certificates of analysis" can be made available on-site during the test program and will be provided in the final test report.

7.0 TEST REPORTS

7.1 CEMS Certification Test Report

Upon completion of the test program, a preliminary (draft final) report will be provided to LBR's Environmental Department – Air Group for internal review prior to submitting the final report(s).

The final test report(s) will include the following:

- All certification test results and calculations
- Field test data (produced by RM and facility, where applicable) of the following:
    1. 7-day calibration drift test
    2. RATA
- Source process data
- RM calibration data
- RM QA check results
- Stack information (dimensions and process/data flow diagrams)
- Calibration gas values (RM)
- Calibration gas certificates of analysis (RM)
- Narrative discussion of the test program (including test method procedures)

40 CFR Part 60 §60.13(c)(2) requires that the CEMS certification report be submitted **within 60 days** of the completion of the certification testing.

7.2 H_2S Performance Test

Upon completion of the performance test program, a preliminary (draft final) report will be provided to LBR's Environmental Department – Air Group for internal review prior to submitting the final report(s).

The final test report(s) will include the following:

- All performance test results and calculations
- Field test data (produced by RM and facility, where applicable) of the following
- Source process data
- RM calibration data
- RM QA check results

- Stack information (dimensions and process/data flow diagrams)
- RM calibration gas values
- RM calibration gas certificates of analysis
- Narrative discussion of the test program (including test method procedures)

LBR intends to submit the performance test report **within 60 days** of the completion of the performance testing.

APPENDIX 1

Sample Location

FOIA Ex 4, CBI

Limetree Bay Refining Operating, LLC
#8 Vaporizer
(E-2118)
Compliance Test Plan
40 CFR Part 60

Anticipated Test Dates: August 2020

For

Limetree Bay Refining Operating, LLC
#1 Estate Hope
Christiansted, VI 00820

Prepared by:

RTP Environmental Associates, Inc.
304-A Millbrook Road
Raleigh, NC 27609

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1.0 INTRODUCTION

Limetree Bay Terminals, LLC / Limetree Bay Refining Operating, LLC (LBR) is in receipt of Construction Permit STX-924-AC-18 issued by the U.S. Virgin Islands Department of Planning and Natural Resources (VI DPNR). Construction Permit STX-924-AC-18 permits the modification of certain process units in order to resume refining operations at the LBR refinery which were idled under previous ownership in 2011 and 2012. Consistent with the permit application, LBR shall continue to comply with the applicable regulatory requirements as defined in Title V Permit No. STX-TV-003-10 for all emission units affected but not modified by the construction project (the "MARPOL" project). A revised Title V Permit application was submitted on July 17, 2019. At the time of preparation and submittal of this test plan, a final revision of Title V permit has not been received. LBR is also in receipt of the First Modification of the facility Consent Decree (Civ. No. 1:11-cv-00006), hereafter referred to as the facility Consent Decree.

LBR has prepared the following test plan to meet the notification requirements for required performance test(s) as set forth by §60.106(e)(1) of 40 CFR Part 60, Subpart J (Subpart J) and §60.104a(a) of 40 CFR Part 60, Subpart Ja (Subpart Ja). This test plan also addresses the continuous emissions monitoring system (CEMS) performance evaluation test(s) ("CEMS certification test") as set forth by the Environmental Protection Agency (EPA) in Title 40 of the Code of Federal Regulations Part 60 (40 CFR Part 60) §60.7(a)(5), §60.105(a)(4), §60.8(d), Title V Permit No. STX-TV-003-10, and the Virgin Islands Air Code (CVIR 12-009-000) Section 206-25(b). This compliance plan discusses the CEMS certification testing as well as the performance testing that will take place upon re-start of the vaporized propane system which is represented by fuel gas at the #8 Vaporizer (E-2118), hereafter referred to as #8VAP. Consistent with the requirements of §60.105(a)(4)(ii) and §60.107a(a)(2)(iv), LBR has elected to monitor at only one location to reflect the concentration of H_2S in the fuel gas being burned at multiple fuel gas combustion devices.

The gaseous CEMS measure the concentration of hydrogen sulfide (H_2S) in units of parts per million by volume, dry basis(ppmvd) of the common fuel gas header stream as required by §60.105(a)(4) and §60.107a(a)(2).

This test plan outlines the procedures to be followed, the test methods to be used, and any requested deviations from either the specific conditions or limitations as listed in Air Permit No. STX-TV-003-10, or from the test methods themselves. Table 1 provides a summary of the relative accuracy criteria for each component being assessed as part of the RATA.

Table 1: Relative Accuracy Criteria

Parameter	Units	Relative Accuracy Specification	
		RM Mean ≥50% of Emission Standard	RM Mean <50% of Emission Standard
H_2S	ppmvd	20% of RM Mean	10% of Emission Standard

Mostardi-Platt is anticipated to perform the EPA reference method (RM) testing for this test project and provide the written report summarizing the results of the test program. Overall project oversight and test protocol development will be provided by RTP Environmental Associates (RTP). Table 2 contains the contact information for all relevant parties.

Table 2: Test Program Contact List

Contact	Company	Address	Phone/Email
Ms. Maria Aloyo	LBR	1 Estate Hope Christiansted, VI 00820-5652	340-692-3781 MAloyo@lbenergy.com
Mr. Stuart Burton	Mostardi-Platt	888 Industrial Drive Elmhurst, IL	630-993-2100 SBurton@mp-mail.com
Ms. Bethany White	RTP	304A West Millbrook Rd. Raleigh, NC 27609	919-578-4876 bwhite@rtpenv.com

The test program is scheduled to begin no sooner than August 21, 2020. A specific test schedule will be determined based on the operating status of the various units to be tested at the facility during the test program. A specific test schedule will be provided to the Administrator upon request.

Appendix 1 contains a photo of the CEMS probe location information for the #8VAP common fuel gas header. Due to health and safety concerns, sampling at the fuel gas header with traversing will not be performed. Rather, RM sampling will be performed at a pressurized sampling tap near the CEMS monitor location.

1.1 TIMING OF TESTS

An initial performance test demonstrating compliance with the H_2S standard of Subpart J and Subpart Ja will be performed as required by §60.106(e)(1) and §60.104a(a). The initial performance test will be conducted in conjunction with the H_2S RATA for the source. Consistent with Appendix L of the draft Consent Decree, the demonstration of compliance will be achieved not later than 60 days after achieving the maximum production rate at which the affected facility will be operated, or no later than 180 days after initial Restart, whichever comes first. For a fuel combustion system, restart is resumption of operation while combusting fuel gas.

The monitoring requirements of Subpart J and Subpart Ja were applicable but were on a delayed compliance schedule prior to source idling. As such, CEMS certification tests were not previously conducted in accordance with 40 CFR Subpart A §60.13(b). Consistent with Appendix L of the draft Consent Decree, the demonstration of compliance will be achieved not later than 60 days after achieving the maximum production rate at which the affected facility will be operated, or no later than 180 days after initial Restart, whichever comes first. For a fuel combustion system, restart is resumption of operation while combusting fuel gas.

2.0 FACILITY DESCRIPTION

2.1 Facility Location

The LBR facility is located at 1 Estate Hope in Christiansted, St. Croix, Virgin Islands.

2.2 Source Descriptions

The #8VAP (E-2118) location is a common fuel gas location that is representative of the "vaporized propane" that is combusted in various units throughout the refinery. The vaporized propane reflects a combination of vaporized purchased propane as well as site-produced propane and as such meets the definition of "fuel gas". Since each combustion unit is subject to the monitoring requirements of Subpart J and/or Subpart Ja, a common fuel header location has been selected. The following down-stream combustion units use the H_2S measurement from the #8VAP CEMS to demonstrate compliance with the monitoring requirements of Subpart Ja:

- Utility Fractionation (H-160)
- Par-Isom Heater (H-202)
- Par-Isom Compressors (C-200A, C-200B, C-200C)

The following down-stream combustion units use the H_2S measurement from the #8VAP CEMS to demonstrate compliance with the monitoring requirements of Subpart J:

- 6DD Compressors (C-4601A, 4601B, C-4601C)
- GT-13 Duct Burner (H-3413)
- Boiler 10 (B-3701)

2.3 Reference Method Sampling Location

Unlike traditional stack testing, the sampling point for the #8VAP monitoring system is located in a vertical section of the fuel gas header. Due to health and safety concerns, it is not possible conduct independent reference method sample extraction from this location. As such, consistent with Alt-010, the reference method sample will be collected from a point near the centroid of the header. The reference method sample will be extracted through the same sample probe and sample line that is used for continuous monitoring purposes. The reference method sample will be extracted at the ground level before continuous monitoring.

The RM location and CEMS location are at least two equivalent diameters downstream from the point at which pollutant concentration changes occur and at least a half equivalent diameter upstream from the effluent exhaust. All stack dimensions will be verified for completeness and

accuracy at the time of testing. Appendix 1 contains a photo of the CEMS probe location information for #8VAP.

2.4 Source CEMS Description

LBR has installed a gas chromatograph to comply with the monitoring requirements of 40 CFR Part 60, Subpart J and Ja on the #8VAP common header. Table 3 provides the monitor location, manufacturer, model, serial number, and span of the CEMS for #8VAP.

Table 3: CEMS Monitor Information – #8VAP

Monitor	Location	Manufacturer/Model	Serial Number	Span
H_2S	#8VAP Header	Emerson Model 500	9020194	300 ppm

The H_2S, of the #8VAP header gas will be measured using hot/wet extractive sampling system. The straight extractive monitoring system withdraws a sample from the stack through a single port extraction sample probe and through a membrane separator that removes moisture. Once the moisture is removed, the dry sample is transported to the monitor. The range of the H_2S monitor was established consistent with the requirements of §60.105(a)(4)(i) of 40 CFR Part 60, Subpart J and §60.107a(a)(2)(i) of Subpart Ja.

The sample probe was installed on the fuel header serving E-2118. The measurement location was selected at an accessible location where the measurements are directly representative of the fuel exiting E-2118. Consistent with the recommendations of §8.1.2 of 40 CFR Part 60, Appendix B, PS-2, the CEMS measurement location is at least 2 equivalent diameters downstream from the nearest control device, point of pollutant generation or other point at which a change in the pollutant concentration is likely to occur and at least a half equivalent diameter upstream from the effluent exhaust.

2.5 Applicable Performance Specifications

LBR conducted the installation of the CEMS and intends to conduct an initial certification of the CEMS in accordance with the manufacturers' recommendations as well as the applicable Performance Specifications (PS) of 40 CFR Part 60 Appendix B. Table 4 summarizes the applicable PS for each CEMS.

Table 4: Performance Specifications

Parameter	Location	Performance Specification
H_2S	#8VAP Header	PS-7

3.0 CERTIFICATION TEST PROCEDURES

This section includes a discussion of the certification test procedures and test methods that will be used for performing the gaseous CEMS certification test procedures, including the relative accuracy test audit (RATA) test methods. The CEMS will be certified in accordance with 40 CFR Part 60, Appendix B, Performance Specifications (PS) 7 for H_2S. Unless stated otherwise, all stack sampling will be performed in accordance with the applicable test methods as described herein. Any deviations from the standard procedures are clearly noted in the following subsections. The following reference methods will or may be utilized during the test program:

- Reference Method 11 Determination of H_2S (Midget Impinger Procedure)

3.1 CEMS Certification Tests

LBR installed each CEMS according to the manufacturers recommendations and industry standard practices. After re-start of the affected source, LBR will conduct CEMS certification testing in accordance with the applicable performance specifications.

Descriptions of the certification test procedures to be used are presented in the subsections below. The two primary tests to be performed on each monitor are:

1. The 7-day calibration drift test, and
2. The relative accuracy test audit (RATA)

Data recorded by the CEMS may not be used to assess compliance or monitor availability until both certification tests are successfully completed.

3.1.1 7-Day Calibration Error Test

For the CEMS certification, a 7-day calibration drift test will be performed on the H_2S monitor in accordance with the procedures specified by 40 CFR Part 60, Appendix B, PS-7 as detailed in PS-2 §8.3. The test measures each instrument's daily calibration error during seven consecutive unit operating days. The magnitude of the calibration drift is quantified at approximately 24-hour intervals but is evaluated during seven consecutive unit operating days, not necessarily consecutive calendar days.

The 7-day calibration drift test will challenge the H_2S monitor once per day at each of two calibration levels while the monitor is operating in their normal sampling modes. The reference gases need not be certified consistent with §7.1 of PS-2 as referenced in PS-7 and 5. Table 6 provides the acceptable calibration levels for the #8VAP CEMS.

No manual or automatic adjustments (i.e., resetting the calibration) will be made to the monitors either prior to or during each of the seven daily calibration error checks. Manual or automatic adjustment to the monitor setting are permitted, however, provided that they are made after taking measurements at both the zero and span-level concentration for that day. If automatic adjustments are made by the monitor, the test will be performed in a manner that will determine and record the extent of the adjustments. The calibration gas will be injected such that it passes through all filters, scrubbers, conditioners, and other monitor components used during normal sampling, and through as much of the sampling probe as practical.

The 7-day calibration drift test results are acceptable if the test results are less than or equal to the levels specified in Table 6 for each monitor. The calibration drift is calculated as a percentage of the instrument span as follows:

$$CD = \left|\frac{C - M}{S}\right| \times 100$$

Where:
- CD = Percentage calibration drift based upon instrument span (%)
- C = Reference value of zero- or upscale-level calibration gas
- M = Actual monitoring system response to the calibration gas
- S = Span of the instrument

The calibration drift on each of the seven days must be less than or equal to the levels specified in Table 5.

Table 5: 7-Day Calibration Drift Performance Specifications

Parameter	Location	Span	Zero-Level	Span-Level	Criteria
H_2S	#8VAP Header	300 ppm	0-60 ppm	150-300 ppm	≤5% (6 out of 7 days)

3.1.2 Relative Accuracy Test Audit

To satisfy the RATA requirements for the H_2S CEMS, the relative accuracy of a minimum nine-run performance test must be less than or equal to 20% of the mean value of the reference data or less than or equal to 10% of the applicable emission standard for the H_2S CEMS. The H_2S emission standard for #8VAP is 162 ppmvd.

The relative accuracy will be calculated using the results of a minimum of nine test runs and one of the following equations:

$$RA = \frac{\left|\bar{d}\right| + \left|CC\right|}{RM} \; or \; \frac{\left|\bar{d}\right| + \left|CC\right|}{ES}$$

Where:

RA = Relative accuracy
d = Mean absolute value of the differences between the CERM and reference method values
CC = Absolute value of the 2.5% error confidence coefficient
RM = Average reference method value (≥ 50% of equivalent emission standard)
ES = Equivalent emission standard (< 50% of equivalent emission standard)

Consistent with Alt-010 the sample will be extracted near the centroid of the #8VAP header and will be transported using the same sample probe and sample line that is used for the continuous monitoring system. The sampling time and volume shall be at least 10 minuts and 0.35 dscf. Two samples of equal sampling times will be taken at about 1 hour intervals and the arithmetic average of the two samples shall constitute a run. A minimum of nine comparative test runs will be performed for the H_2S RATA.

4.0 Performance Testing

4.1 H_2S Performance Test

A H_2S performance test will be performed on #8VAP header in accordance with 40 CFR Subpart J and Subpart Ja. Consistent with §60.106(e)(1) and 60.104a(a), LBR will determine the H_2S content from the #8VAP header using RM-11. In accordance with §60.104((j)(4)(i) the sampling time and sample volume must be at least 10 minutes and 0.35 dscf. Two samples of equal sampling times must be taken at about -hour intervals. The arithmetic average of these two samples constitutes a run. A minimum of three one-hour runs will be performed and will be averaged to demonstrate compliance with the Subpart J and Subpart Ja H_2S emission limitation. LBR may elect to use RATA test runs meeting the requirements of this paragraph in place of a single performance test run.

5.0 PROCESS DATA

5.1 CEMS RATA

During the RATA, all data will be electronically logged and printed out by the DAHS. In order to appropriately calculate and report the CEMS RATA data, the following process data will be provided by the plant, either manually or by the plant's DAHS: (1) date, (2) time, (3) source, and (4) H_2S ppm. All testing will be performed under normal process conditions. For the purposes of testing, normal process conditions will be anytime that any fuel gas is transferred in the #8VAP header.

5.2 Performance Tests

In order to appropriately report the performance test data, the following process data will be provided by the plant, either manually or by the plant's DAHS: (1) date, (2) time, (3) source, and (4) #8VAP flow rate.

6.0 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

The previously described reference methods are very technique oriented. Attempts to minimize any and all factors which can increase test measurement error are performed by implementing a Quality Assurance Program (and their associated procedures) into every segment of the testing activities. The following sections detail all QA/QC procedures to be followed during the test program.

6.1 Sampling Equipment Calibrations

All of the emission testing equipment used will be calibrated according to the procedures outlined in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, EPA-600/4-77-207b.

6.2 Calibration Gases

All calibration gases used during the test program will be EPA Protocol provided by reputable calibration gas vendors. No calibration gas cylinders will be used that have reached or exceeded their expiration date(s), nor will they be used if they contain less than 100 psi of gas. Copies of the calibration gas "certificates of analysis" can be made available on-site during the test program and will be provided in the final test report.

7.0 TEST REPORTS

7.1 CEMS Certification Test Report

Upon completion of the test program, a preliminary (draft final) report will be provided to LBR's Environmental Department – Air Group for internal review prior to submitting the final report(s).

The final test report(s) will include the following:

- All certification test results and calculations
- Field test data (produced by RM and facility, where applicable) of the following:
    1. 7-day calibration drift test
    2. RATA
- Source process data
- RM calibration data
- RM QA check results
- Stack information (dimensions and process/data flow diagrams)
- Calibration gas values (RM)
- Calibration gas certificates of analysis (RM)
- Narrative discussion of the test program (including test method procedures)

40 CFR Part 60 §60.13(c)(2) requires that the CEMS certification report be submitted **within 60 days** of the completion of the certification testing.

7.2 H_2S Performance Test

Upon completion of the performance test program, a preliminary (draft final) report will be provided to LBR's Environmental Department – Air Group for internal review prior to submitting the final report(s).

The final test report(s) will include the following:

- All performance test results and calculations
- Field test data (produced by RM and facility, where applicable) of the following
- Source process data
- RM calibration data
- RM QA check results

- Stack information (dimensions and process/data flow diagrams)
- RM calibration gas values
- RM calibration gas certificates of analysis
- Narrative discussion of the test program (including test method procedures)

LBR intends to submit the performance test report **within 60 days** of the completion of the performance testing.

APPENDIX 1

Sample Location

FOIA Ex 4, CBI

Limetree Bay Refining Operating, LLC
#8 Flare (STK-7941)
Compliance Test Plan
40 CFR Part 60 and 63

Anticipated Test Dates: August 2020

For

Limetree Bay Refining Operating, LLC
#1 Estate Hope
Christiansted, VI 00820

Prepared by:

RTP Environmental Associates, Inc.
304-A Millbrook Road
Raleigh, NC 27609

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1.0 INTRODUCTION

Limetree Bay Terminals, LLC / Limetree Bay Refining Operating, LLC (LBR) is in receipt of Construction Permit STX-924-AC-18 issued by the U.S. Virgin Islands Department of Planning and Natural Resources (VI DPNR). Construction Permit STX-924-AC-18 permits the modification of certain process units in order to resume refining operations at the LBR refinery which were idled under previous ownership in 2011 and 2012. Consistent with the permit application, LBR shall continue to comply with the applicable regulatory requirements as defined in Title V Permit No. STX-TV-003-10 for all emission units affected but not modified by the construction project (the "MARPOL" project). A revised Title V Permit application was submitted on July 17, 2019. At the time of preparation and submittal of this test plan, a final revision of Title V permit has not been received.

LBR has prepared the following test plan to meet the notification requirements for required performance test(s) as set forth by §60.104a(j) of 40 CFR Part 60, Subpart Ja (Subpart Ja). This test plan also addresses the continuous emissions monitoring system (CEMS) performance evaluation test(s) ("CEMS certification test") as set forth by the Environmental Protection Agency (EPA) in Title 40 of the Code of Federal Regulations Part 60 (40 CFR Part 60) §60.7(a)(5), §60.107a(a)(2), §60.107a(e)(1) and (2), §60.8(d), Title V Permit No. STX-TV-003-10, and the Virgin Islands Air Code (CVIR 12-009-000) Section 206-25(b). Though formal notification is not required, this plan also addresses the initial visible emissions demonstration that will be conducted consistent with the requirements of §63.670(h) of 40 CFR Part 63 Subpart CC. This compliance plan discusses the CEMS certification testing as well as the performance testing and visible emission demonstration that will take place upon re-start of the FCC LP Flare, hereafter referred to as Flare #8 (STK-7941).

The gaseous CEMS measure the concentration of hydrogen sulfide (H_2S) in units of parts per million by volume, dry basis(ppmvd) of the flare header stream as required by §60.107a(a)(2). The gaseous CEMS will also be used to conduct sulfur monitoring for root cause analysis as required by §60.107a(e)(1) by certifying a measurement system for total reduced sulfur (TRS) compounds in units of ppmvd.

Additional Continuous Parameter Monitoring Systems (CPMS) have been installed consistent with the requirements of Table 13 of 40 CFR Part 63 Subpart CC. The initial certification of the Net Heating Value (NHV) measurement system will be conducted consistent with PS-9 of Part 60 Appendix B and ALT-131. The initial and ongoing activities for these systems are discussed in the Limetree Bay Refining Continuous Parameter Monitoring System (CPMS) Monitoring Plan.

This test plan outlines the procedures to be followed, the test methods to be used, and any requested deviations from either the specific conditions or limitations as listed in Air Permit No. STX-TV-003-10, or from the test methods themselves. Table 1 provides a summary of the relative accuracy criteria for each component being assessed as part of the RATA.

Table 1: Relative Accuracy Criteria

Parameter	Units	Relative Accuracy Specification	
		RM Mean ≥50% of Emission Standard	RM Mean <50% of Emission Standard
H_2S	ppmvd	20% of RM Mean	10% of Emission Standard
TRS	ppmvd	20% of RM Mean	10% of Emission Standard

Mostardi-Platt is anticipated to perform the EPA reference method (RM) testing for this test project and provide the written report summarizing the results of the test program. Overall project oversight and test protocol development will be provided by RTP Environmental Associates (RTP). Table 2 contains the contact information for all relevant parties.

Table 2: Test Program Contact List

Contact	Company	Address	Phone/Email
Ms. Maria Aloyo	LBR	1 Estate Hope Christiansted, VI 00820-5652	340-692-3781 MAloyo@lbenergy.com
Mr. Stuart Burton	Mostardi-Platt	888 Industrial Drive Elmhurst, IL	630-993-2100 SBurton@mp-mail.com
Ms. Bethany White	RTP	304A West Millbrook Rd. Raleigh, NC 27609	919-578-4876 bwhite@rtpenv.com

The test program is scheduled to begin no sooner than August 21, 2020. A specific test schedule will be determined based on the operating status of the various units to be tested at the facility during the test program. A specific test schedule will be provided to the Administrator upon request.

Appendix 1 contains a photo of the CEMS probe location information for Flare #8. Due to health and safety concerns, sampling at the flare header with traversing will not be performed. Rather, RM sampling will be performed at a pressurized sampling tap near the CEMS monitor location.

1.1 TIMING OF TESTS

An initial performance test demonstrating compliance with the H_2S standard of Subpart Ja will be performed as required by §60.104a(a). The initial performance test will be conducted in conjunction with the H_2S RATA for the source. Consistent with Appendix L of the draft Consent Decree, the demonstration of compliance will be achieved not later than 90 days after Flaring Device Restart. For a flare, restart is resumption of operation while combusting fuel gas.

The monitoring requirements of Subpart Ja were applicable but were on a delayed compliance schedule prior to source idling. As such, CEMS certification tests were not previously conducted in accordance with 40 CFR Subpart A §60.13(b). Consistent with Condition 50C.a. of the draft Consent Decree, LBR will comply with the hydrogen sulfide monitoring, sulfur monitoring, and flow monitoring requirements of 40 CFR §60.107a(a)(2), (e) and (f) respectively upon flare restart. Prior to restart of the flare, an instrument for continuously monitoring and recording the H_2S concentration by volume (dry basis) will be installed, operated, calibrated and maintained. Consistent with Appendix L of the draft Consent Decree, the demonstration of compliance with NSPS Ja monitoring will be achieved not later than 90 days after Flaring Device Restart. For a flare, restart is resumption of operation while combusting fuel gas.

The requirements for flare control devices contained in 40 CFR Part 63 Subpart CC were not applicable prior to source idling. As such, an initial visible emissions demonstration consistent with §63.670(h) will be conducted once regulated materials are vented to the flare. Likewise, the Continuous Parameter Monitoring Systems (CPMS) required by §63.670 were not operational prior to source idling. For each CPMS, LBR will install, operate, calibrate, and maintain the CPMS as specified in §63.671, Table 13 of 40 CFR Part 63 Subpart CC and the site-specific CPMS monitoring plan prepared in accordance with §63.671(b). Though not specified in the

draft Consent Decree or Subpart CC, LBR intends to conduct the initial visible emissions demonstration and initial calibration of all CPMS within 90 days after Flaring Device Restart. For a flare, restart will be defined as resumption of operation while combusting fuel gas.

2.0 FACILITY DESCRIPTION

2.1 Facility Location

The LBR facility is located at 1 Estate Hope in Christiansted, St. Croix, Virgin Islands.

2.2 Source Descriptions

Flare #8 is an elevated, steam-assisted, non-emergency flare that is subject to the H_2S emission limit specified in Subpart Ja §60.103a(h), total sulfur root-cause analysis limitations and monitoring requirements specified in Subpart Ja §60.103a(c), and operating limits specified in MACT CC §63.670.

2.3 Reference Method Sampling Location

Unlike traditional stack testing, the sampling point for the Flare #8 monitoring system is located in a horizontal section of the flare header. Due to health and safety concerns, it is not possible conduct independent reference method sample extraction from this location. As such, consistent with Alt-010, the reference method sample will be collected from a point near the centroid of the header. The reference method sample will be extracted through the same sample probe and sample line that is used for continuous monitoring purposes. The reference method sample will be extracted at the ground level just after a sample pump but before continuous monitoring.

The RM location and CEMS location are at least two equivalent diameters downstream from the point at which pollutant concentration changes occur and at least a half equivalent diameter upstream from the effluent exhaust. All stack dimensions will be verified for completeness and accuracy at the time of testing. Appendix 1 contains a photo of the CEMS probe location information for Flare #8.

2.4 Source CEMS Description

LBR has installed a mass spectrometer to comply with the monitoring requirements of 40 CFR Part 60, Subpart Ja on the header serving Flare #8. Table 3 provides the monitor location, manufacturer, model, serial number, and span (or effective span) of each CEMS for Flare #8.

Table 3: CEMS Monitor Information – Flare #8

Monitor	Location	Manufacturer/Model	Serial Number	Span
H_2S	Flare #8 Header	Extrel MAX300-RTG-D2AT3	63415	300 ppm
TRS				1000 ppm[1]

[1] Consistent with the Limetree Alternative Monitoring Plan (AMP) approval, an effective span of 1000 ppm will be used for calibration gas selection purposes for Flare #8. See Appendix 2.

The H_2S, TRS, NHV, moisture, and composition of the flare header gas will be measured at Flare #8 using a straight (hot/wet)-extractive sampling system. The straight extractive monitoring system withdraws a sample from the stack through a single port extraction sample probe and the hot/wet sample is transported to the mass spectrometer which is located in an environmentally-controlled shelter. The H_2S and TRS monitoring components will each be configured as single-range monitors. The range of the H_2S component was established consistent with the requirements of §60.107a(a)(2)(i) of Subpart Ja. The range of the TRS component was established consistent with the requirements of §60.107a(e)(1) and the approved AMP included in Appendix 2 of this document.

The sample probe was installed on the header serving Flare #8. The measurement location was selected at an accessible location where the measurements are directly representative of the flare header. Consistent with the recommendations of §8.1.2 of 40 CFR Part 60, Appendix B, PS-2, the CEMS measurement location is at least 2 equivalent diameters downstream from the nearest control device, point of pollutant generation or other point at which a change in the pollutant concentration is likely to occur and at least a half equivalent diameter upstream from the effluent exhaust.

2.5 Applicable Performance Specifications

LBR conducted the installation of the CEMS and intends to conduct an initial certification of the CEMS in accordance with the manufacturers' recommendations as well as the applicable Performance Specifications (PS) of 40 CFR Part 60 Appendix B. Table 4 summarizes the applicable PS for each CEMS.

Table 4: Performance Specifications

Parameter	Location	Performance Specification
H_2S	Flare Header	PS-7
TRS	Flare Header	PS-5
NHV	Flare Header	PS-9/ Alt-131

3.0 CERTIFICATION TEST PROCEDURES

This section includes a discussion of the certification test procedures and test methods that will be used for performing the gaseous CEMS certification test procedures, including the relative accuracy test audit (RATA) test methods. The CEMS will be certified in accordance with 40 CFR Part 60, Appendix B, Performance Specifications (PS) 7 and 5 for H_2S and TRS respectively. The NHV CPMS will be certified in accordance with PS-9 and Alt-131 which does not include a reference method comparison. Unless stated otherwise, all stack sampling will be performed in accordance with the applicable test methods as described herein. Any deviations from the standard procedures are clearly noted in the following subsections. The following reference methods will or may be utilized during the test program:

- Reference Method 11 Determination of H_2S (Midget Impinger Procedure)
- Reference Method 15A Determination of TRS (Titration Procedure)

3.1 CEMS Certification Tests

LBR installed each CEMS according to the manufacturers recommendations and industry standard practices. After re-start of the affected source, LBR will conduct CEMS certification testing in accordance with the applicable performance specifications.

Descriptions of the certification test procedures to be used are presented in the subsections below. The two primary tests to be performed on each monitor are:

1. The 7-day calibration drift test, and
2. The relative accuracy test audit (RATA)

With the exception of data from the H_2S monitoring system, data recorded by the CEMS may not be used to assess compliance or monitor availability until both certification tests are successfully completed. Consistent with Condition 50C.a.i. of the draft Consent Decree, data from the H_2S CEMS generated prior to the demonstration of compliance shall be included for purposes of calculating the Mitigation Amount during the first year of Flare #8 operation regardless of whether the fare's H_2S CEMS fails its RATA. In the event that the H_2S CEMS fails its RATA, the measured values recorded prior to the RATA will be adjusted based on the level of inaccuracy demonstrated by the RATA or other credible evidence.

3.1.1 7-Day Calibration Error Test

For the CEMS certification, a 7-day calibration drift test will be performed on the H_2S and TRS monitors in accordance with the procedures specified by 40 CFR Part 60, Appendix B, PS-7 and 5 respectively as detailed in PS-2 §8.3. The test measures each instrument's daily calibration error during seven consecutive unit operating days. The magnitude of the calibration drift is quantified at approximately 24-hour intervals but is evaluated during seven consecutive unit operating days, not necessarily consecutive calendar days.

The 7-day calibration drift test will challenge the H_2S and TRS monitor once per day at each of two calibration levels while the monitors are operating in their normal sampling modes. The reference gases need not be certified consistent with §7.1 of PS-2 as referenced in PS-7 and 5. Table 6 provides the acceptable calibration levels for each of the Flare #8 systems.

No manual or automatic adjustments (i.e., resetting the calibration) will be made to the monitors either prior to or during each of the seven daily calibration error checks. Manual or automatic adjustment to the monitor setting are permitted, however, provided that they are made after taking measurements at both the zero and span-level concentration for that day. If automatic adjustments are made by the monitor, the test will be performed in a manner that will determine and record the extent of the adjustments. The calibration gas will be injected such that it passes through all filters, scrubbers, conditioners, and other monitor components used during normal sampling, and through as much of the sampling probe as practical.

The 7-day calibration drift test results are acceptable if the test results are less than or equal to the levels specified in Table 6 for each monitor. The calibration drift is calculated as a percentage of the instrument span as follows:

$$CD = \left|\frac{C - M}{S}\right| \times 100$$

Where:
- CD = Percentage calibration drift based upon instrument span (%)
- C = Reference value of zero- or upscale-level calibration gas
- M = Actual monitoring system response to the calibration gas
- S = Span of the instrument

The calibration drift on each of the seven days must be less than or equal to the levels specified in Table 5.

Table 5: 7-Day Calibration Drift Performance Specifications

Parameter	Location	Span	Zero-Level	Span-Level	Criteria
H_2S	Flare Header	300 ppm	0-60 ppm	150-300 ppm	≤5% (6 out of 7 days)
TRS	Flare Header	1000 ppm *Effective span per AMP*	0-200 ppm	500-1000 ppm	≤5% (6 out of 7 days)

3.1.2 Relative Accuracy Test Audit

To satisfy the RATA requirements for the H_2S and TRS CEMS, the relative accuracy of a minimum nine-run performance test must be less than or equal to 20% of the mean value of the reference data or less than or equal to 10% of the applicable emission standard for the H_2S and TRS CEMS. The H_2S emission standard for Flare #8 is 162 ppmvd. The TRS emission standard is 500 lb in any 24-hour period. An equivalent TRS emission standard in units of ppmvw will be calculated based on the actual volumetric flow rate recorded during the testing if the RATA results are calculated based on the applicable emission standard.

The relative accuracy will be calculated using the results of a minimum of nine test runs and one of the following equations:

$$RA = \frac{\left|\bar{d}\right| + \left|CC\right|}{RM} \; or \; \frac{\left|\bar{d}\right| + \left|CC\right|}{ES}$$

Where:

RA = Relative accuracy
d = Mean absolute value of the differences between the CERM and reference method values
CC = Absolute value of the 2.5% error confidence coefficient
RM = Average reference method value (≥ 50% of equivalent emission standard)
ES = Equivalent emission standard (< 50% of equivalent emission standard)

Consistent with Alt-010 the sample will be extracted near the centroid of the flare header and will be transported using the same sample probe and sample line that is used for the continuous

monitoring system. The sampling time and volume shall be at least 10 minutes and 0.35 dscf. Two samples of equal sampling times will be taken at about 1 hour intervals and the arithmetic average of the two samples shall constitute a run. A minimum of nine comparative test runs will be performed for the H_2S RATA. A minimum of nine 60-minute comparative test runs will be performed for the TRS RATA.

3.2 NHV Certification Tests

LBR installed the NHV CPMS system according to the manufacturers recommendations and industry standard practices. After re-start of the affected source, LBR will conduct certification testing in accordance with PS-9 and Alt-131.

Descriptions of the certification test procedures to be used are presented in the subsections below. The two primary tests to be performed on each monitor are:

1. The multi-point calibration, and
2. The performance audit

3.2.1 Multi-Point Calibration

For the NHV CPMS certification, an initial multi-point calibration will be conducted in accordance with the procedures specified by 40 CFR Part 60, Appendix B, PS-9 §10.1. Subsequent to the initial multi-point calibration, the calibration drift will be determined once every 24-hours in accordance with the procedures specified by 40 CFR Part 60, Appendix B, PS-9 §3.2 and §8.3. The test measures the instrument's response to three certified EPA audit gas mixture containing all the target compounds anticipated for the stream. Constituents with the same carbon number were combined according to the surrogate method. The anticipated concentration NHV of each calibration gas blend is presented in Table 6.

Table 6: Flare #8 Calibration Gases

	Low-Level		**Mid-Level**		**High-Level**	
Component	**%**	**NHV**	**%**	**NHV**	**%**	**NHV**
Hydrogen	1.7	1212	3.3	1212	5	1212
C1 as Methane	5	896	10	896	15	896
C2 as Ethane	5	1595	10	1595	15	1595
C3 as Propane	5	2281	10	2281	15	2281
C4 as n-Butane	0.15	2968	0.3	2968	0.45	2968
C5% as n-Pentane	0.15	3655	0.3	3655	0.45	3655
Certified Concentration		**269**		**537**		**806**

Each certified concentration is analyzed three times. The average instrument response at each level shall be ≤10% of the certified value of the audit gas based on the total NHV of the certified calibration gas mixture. For each triplicate injection at each concentration level, any one injection shall not deviate more than 5% from the average concentration measured at the level and the linear regression curve at all three levels shall have an $r^2 \geq 0.995$ based on the total NHV.

3.2.2 Performance Audit

For the NHV CPMS certification, a performance audit will be conducted consistent with PS-9 §8.4. The test measures the instrument's response to a single certified EPA audit gas mixture that contains all the target compounds anticipated for the stream. Constituents with the same carbon number were combined according to the surrogate method. The anticipated mid-level NHV concentration of the calibration gas blend is presented in Table 7 however a different gas cylinder must be used for the performance audit.

The certified performance audit gas is analyzed three times. The average instrument response shall be ≤10% of the certified value of the audit gas based on the total NHV of the certified calibration gas mixture. For each triplicate injection at each concentration level, any one injection shall not deviate more than 5% from the average concentration measured at the level based on the total NHV.

4.0 Performance Testing

4.1 H_2S Performance Test

A H_2S performance test will be performed on Flare #8 header in accordance with 40 CFR Subpart Ja. Consistent with §60.104a(a) and (j). LBR will determine the H_2S content from the Flare #8 header using RM-11. In accordance with §60.104((j)(4)(i) the sampling time and sample volume must be at least 10 minutes and 0.35 dscf. Two samples of equal sampling times must be taken at about -hour intervals. The arithmetic average of these two samples constitutes a run. A minimum of three one-hour runs will be performed and will be averaged to demonstrate compliance with the Subpart Ja H2S emission limitation. LBR may elect to use RATA test runs meeting the requirements of this paragraph in place of a single performance test run.

4.2 Visible Emissions Demonstration

An initial visible emissions demonstration will be conducted consistent with 40 CFR Part 63 Subpart CC §63.670(h). The initial visible emissions demonstration will be conducted using RM-22 (non-certified observer method without quantification of visible emissions) using an observation period of 2 hours. The initial visible emissions demonstration will be performed to verify that no visible emissions are observed for more than 5 minutes during any 2 consecutive hours while regulated materials are vented to the flare.

5.0 PROCESS DATA

5.1 CEMS RATA

During the RATA, all data will be electronically logged and printed out by the DAHS. In order to appropriately calculate and report the CEMS RATA data, the following process data will be provided by the plant, either manually or by the plant's DAHS: (1) date, (2) time, (3) source, (4) volumetric flow rate, (5) H2S ppm, and (6) TRS ppm. All testing will be performed under normal process conditions.

5.2 Performance Tests

In order to appropriately report the performance test data, the following process data will be provided by the plant, either manually or by the plant's DAHS: (1) date, (2) time, (3) source, and (4) vent flow rate.

6.0 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

The previously described reference methods are very technique oriented. Attempts to minimize any and all factors which can increase test measurement error are performed by implementing a Quality Assurance Program (and their associated procedures) into every segment of the testing activities. The following sections detail all QA/QC procedures to be followed during the test program.

6.1 Sampling Equipment Calibrations

All of the emission testing equipment used will be calibrated according to the procedures outlined in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, EPA-600/4-77-207b.

6.2 Calibration Gases

All calibration gases used during the test program will be EPA Protocol provided by reputable calibration gas vendors. No calibration gas cylinders will be used that have reached or exceeded their expiration date(s), nor will they be used if they contain less than 100 psi of gas. Copies of the calibration gas "certificates of analysis" can be made available on-site during the test program and will be provided in the final test report.

7.0 TEST REPORTS

7.1 CEMS Certification Test Report

Upon completion of the test program, a preliminary (draft final) report will be provided to LBR's Environmental Department – Air Group for internal review prior to submitting the final report(s).

The final test report(s) will include the following:

- All certification test results and calculations
- Field test data (produced by RM and facility, where applicable) of the following:
    1. 7-day calibration drift test
    2. RATA
- Source process data
- RM calibration data
- RM QA check results
- Stack information (dimensions and process/data flow diagrams)
- Calibration gas values (RM)
- Calibration gas certificates of analysis (RM)
- Narrative discussion of the test program (including test method procedures)

40 CFR Part 60 §60.13(c)(2) requires that the CEMS certification report be submitted **within 60 days** of the completion of the certification testing.

7.2 H_2S Performance Test

Upon completion of the performance test program, a preliminary (draft final) report will be provided to LBR's Environmental Department – Air Group for internal review prior to submitting the final report(s).

The final test report(s) will include the following:

- All performance test results and calculations
- Field test data (produced by RM and facility, where applicable) of the following
- Source process data
- RM calibration data
- RM QA check results

- Stack information (dimensions and process/data flow diagrams)
- RM calibration gas values
- RM calibration gas certificates of analysis
- Narrative discussion of the test program (including test method procedures)

LBR intends to submit the performance test report **within 60 days** of the completion of the performance testing.

7.3 Visible Emissions Demonstration

LBR will maintain records of the 2 hour visible emissions demonstration for a minimum of 3 years consistent with the recordkeeping requirements of §63.655(i)(9)(ii).

APPENDIX 1

Sample Location

FOIA Ex 4, CBI

APPENDIX 2

LBR Flare AMP Approval

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

May 19, 2020

Mr. Brian K. Lever, President
Ms. Catherine Elizee
Limetree Bay Refining, LLC
1 Estate Hope
Christiansted, VI 00820-5652

Dear Mr. Lever and Ms. Elizee;

I am writing in response to your letter dated August 30, 2019, and received by our office on December 10, 2019, requesting approval for alternative measurement method procedures to support your compliance testing and monitoring requirements at the Limetree Bay Refining, LLC (Limetree) refinery, St. Croix, U.S. Virgin Islands. We requested additional information regarding your process mass spectrometer and received your answer on March 23, 2020. You indicate that the Limetree refinery is subject to total reduced sulfur (TRS) and hydrogen sulfide (H_2S) monitoring requirements under 40 CFR 60, Subpart Ja, Standards of Performance for Petroleum Refineries [§§60.107a(e)(1) and 60.107a(a)(2)] as well as requirements for monitoring the net heating value of gas fed to flares under 40 CFR 63, Subpart CC, National Emissions Standards for Hazardous Air Pollutants from Petroleum Refineries [§63.671(e)(2)(ii)].

As we understand, for your H_2S monitoring under §60.107a(a)(2), you are required to install, operate and maintain each H_2S continuous emission monitoring system (CEMS) according to Performance Specification 7 (40 CFR 60, Appendix B), use a span of 300 ppm H_2S, and follow Procedure 1 of 40 CFR 60, Appendix F for ongoing quality assessments. Under §60.107a(e)(1) you are required to install, operate and maintain your TRS CEMS according to Performance Specification 5 (40 CFR 60, Appendix B), using Method 15A of 40 CFR 60, Appendix A as the reference method for relative accuracy evaluations. You are also required to follow Procedure 1 for ongoing quality assessments of the TRS CEMS. You noted that the span value used for the TRS CEMS must be determined based on the maximum sulfur content of gas that can be discharged to the flare (e.g., roughly 1.1 to 1.3 times the maximum anticipated sulfur concentration) but may be no less than 5,000 ppmv. You also indicated that Subpart Ja defines reduced sulfur compounds as the aggregate of H_2S, COS, and CS_2.

Your letter requests approval of alternatives to the quality assessment procedures required for the TRS CEMS in §60.107a(e)(1):

1) To use an Extrel MAX300-RTG process mass spectrometer that you have already installed as your H_2S CEMS to also measure TRS;

2) To determine TRS by measuring and summing three specific reduced sulfur compounds, H_2S, COS, and CS_2;

3) To include H_2S, COS, and CS_2 in the calibration and audit gas cylinders;

4) To use a lower concentration cylinder gas than the minimum required 5,000 ppmv gas to perform daily TRS calibration drift (CD) checks;

5) To use the same gas cylinders for the span gas concentration for H_2S and TRS; and

6) To perform quarterly cylinder gas audits (CGAs) and alternative CGAs under §60.107a(e)(1)(ii) for TRS with reduced concentrations (see Tables 1 and 2).

Your letter also requests approval to include H_2S in the list of compounds used to meet the net heating value monitoring requirements in §63.671(e)(2).

You provided Tables 1 and 2 presented below to summarize the requested alternative cylinder gas concentrations for H_2S and TRS to meet the flare CEMS quality control and quality assurance requirements under Subpart Ja at your Limetree facility.

Table 1. Calibration Gas Concentrations for Daily CD Checks

	H_2S Concentration (ppmv)	TRS Concentration (ppmv)
Zero/Low Level	0-60	0-200
High Level	150-300	500-1,000

Table 2. Gas Concentrations for Quarterly Cylinder Gas Audits for Accuracy

	H_2S Concentration (ppmv)	TRS Concentration (ppmv)
Low Level	60-90	200-300
High Level	150-180	500-600

To support your request, you cited the National Institute of Occupational Safety and Health Immediately Dangerous to Life or Health value of 100 ppmv for H_2S and noted that Limetree seeks to limit safety hazards to its personnel. You explained that the location of the Limetree facility on St. Croix poses a unique challenge in transport/shipping of high sulfur concentration gas cylinders. There are no gas production facilities on St. Croix, so any calibration gas cylinders must be shipped to the island by boat or plane. Due to the logistics of emergency response were

there to be a leaking cylinder on a plane or boat, the gas supplier limits the concentration of shipped gases to 1000 ppmv total TRS. You also provided the manufacturer's demonstration of linearity for H_2S up to 100 percent for the Extrel MAX300-RTG process mass spectrometer and you provided manufacturers linearity for TRS using a mix of the three compounds proposed by Limetree up to a total of 80 percent TRS.

With this letter we are providing partial approval of your request in consideration of the following:

1) In Subpart Ja, §60.107a(e)(1)(i) specifies Performance Specification 5 (PS 5) to continuously measure TRS. PS 5 is performance-based and does not restrict the instrumentation utilized so long as the measurement meets the quality requirements in PS-5. Therefore, an alternative method approval is not needed to use the Extrel MAX300-RTG process mass spectrometer for TRS measurements under §60.107a(e)(1).

2) Similarly, in 2018, we issued a broadly applicable alternative test method approval (ALT-124) for use of process mass spectrometers to determine NHV_{VG} to meet the requirements in Subpart CC and we allowed affected facilities to augment the minimum list of calibration gas components found in Subpart CC §63.671(e) with compounds found during the pre-survey to develop site-specific analysis methods for NHV_{VG}. Furthermore, H_2S is an optional calibration component found in §63.671(e)(2)(i)(O). Therefore, no alternative measurement approval is needed to use the process mass spectrometer to measure H_2S and include this compound in the calculation of NHV_{VG}; however, you must use the individual component properties in Table 12 of §63.671 to calculate NHV_{VG}.

We recognize the significant safety and shipping constraints posed by the use of high sulfur cylinder gases at your facility and are approving your request to use lower concentration cylinder gas calibration and audit standards as requested and specified in Tables 1 and 2. Since this alternative test method approval primarily responds to the safety issues involved in shipping high concentration TRS and H_2S containing cylinders, it is restricted to the St. Croix Limetree Bay Refining facility noted above. A copy of this approval letter must be included in the reporting for each testing/monitoring program where these alternative procedures are applied.

If you have any questions regarding this approval or need further assistance, please contact Ray Merrill at (919) 541-5225 or *merrill.raymond@epa.gov*.

Sincerely,

Steffan M Johnson STEFFAN JOHNSON Digitally signed by STEFFAN JOHNSON Date: 2020.05.26 15:09:49 -04'00'

Steffan M. Johnson, Group Leader
Measurement Technology Group

cc: Phil Cocuzza, Region 2
Gerri Garwood, EPA/OAQPS/SPPD
Carol Lynes, Region 2
Maria Malave, EPA/OECA/OC
Harish Patel, Region 2
Supriya Rao, Region 2
Brenda Shine, EPA/OAQPS/SPPD
Kai Tang, Region 2

Limetree Bay Refining Operating, LLC
East Incinerator (H-4745)
Compliance Test Plan
40 CFR Part 60

Anticipated Test Dates: August 2020

For

Limetree Bay Refining Operating, LLC
#1 Estate Hope
Christiansted, VI 00820

Prepared by:

RTP Environmental Associates, Inc.
304-A Millbrook Road
Raleigh, NC 27609

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1.0 INTRODUCTION

Limetree Bay Terminals, LLC / Limetree Bay Refining Operating, LLC (LBR) is in receipt of Construction Permit STX-924-AC-18 issued by the U.S. Virgin Islands Department of Planning and Natural Resources (VI DPNR). Construction Permit STX-924-AC-18 permits the modification of certain process units in order to resume refining operations at the LBR refinery which were idled under previous ownership in 2011 and 2012. Consistent with the permit application, LBR shall continue to comply with the applicable regulatory requirements as defined in Title V Permit No. STX-TV-003-10 for all emission units affected but not modified by the construction project (the "MARPOL" project). A revised Title V Permit application was submitted on July 17, 2019. At the time of preparation and submittal of this test plan, a final revision of Title V permit has not been received. LBR is also in receipt of the First Modification of the facility Consent Decree (Civ. No. 1:11-cv-00006), hereafter referred to as the facility Consent Decree.

LBR has prepared the following compliance test plan to meet the notification requirements for required performance test(s) and the continuous emissions monitoring system (CEMS) performance evaluation test(s) ("CEMS certification test") as set forth by the Environmental Protection Agency (EPA) in Title 40 of the Code of Federal Regulations Part 60 (40 CFR Part 60) §60.7(a)(5), Title V Permit No. STX-TV-003-10, and the Virgin Islands Air Code (CVIR 12-009-000) Section 206-25(b). This compliance plan discusses the stack CEMS certification testing as well as the performance testing that will take place upon re-start of the East Side Sulfur Recovery Plant and associated Incinerator (Source ID H-4745).

The gaseous CEMS measure the mass emissions of sulfur dioxide (SO_2) in units of parts per million on a dry basis at a dilution of 15-percent oxygen (ppm @15 $\%O_2$). This test plan outlines the procedures to be followed, the test methods to be used, and any requested deviations from either the specific conditions or limitations as listed in Air Permit No. STX-TV-003-10, or from the test methods themselves. Table 1 provides a summary of the relative accuracy criteria for each component being assessed as part of the RATA.

Table 1: Relative Accuracy Criteria

Parameter	Units	Relative Accuracy Specification	
		RM Mean ≥50% of Emission Standard	RM Mean <50% of Emission Standard
SO_2	ppmvd @ 15% O_2	20% of RM Mean	10% of Emission Standard
Diluent CEMS		**Primary Criteria**	**Alternative Criteria**
O_2	$\%_d$	20% of RM Mean	±1.0% Absolute Difference

Mostardi-Platt is anticipated to perform the EPA reference method (RM) testing for this test project and provide the written report summarizing the results of the test program. Overall project oversight and test protocol development will be provided by RTP Environmental Associates (RTP). Table 2 contains the contact information for all relevant parties.

Table 2: Test Program Contact List

Contact	Company	Address	Phone/Email
Ms. Maria Aloyo	LBR	1 Estate Hope Christiansted, VI 00820-5652	340-692-3781 MAloyo@lbenergy.com
Mr. Stuart Burton	Mostardi-Platt	888 Industrial Drive Elmhurst, IL	630-993-2100 SBurton@mp-mail.com
Ms. Bethany White	RTP	304A West Millbrook Rd. Raleigh, NC 27609	919-578-4876 bwhite@rtpenv.com

The test program is scheduled to begin no sooner than August 21, 2020. A specific test schedule will be determined based on the operating status of the various unit to be tested at the facility during the test program. A specific test schedule will be provided to the Administrator upon request.

Appendix 1 contains Reference Method (RM) 1 site location information for H-4745, sample traverse points for the RM 3A and 6C for each test run.

1.1 TIMING OF TESTS

CEMS certification tests were conducted under previous ownership in accordance with 40 CFR Subpart A §60.13(b). As a result of source idling, the required quality assurance and quality control activities for the CEMS were not conducted. An initial performance test demonstrating compliance with the SO_2 emission standard of NSPS Subpart Ja will be performed as required by §60.104a(h). Since the sulfur recovery plant is followed by incineration, the H_2S limitations of §60.102a(f) do not apply and as such an initial performance test for H_2S is not necessary and will

not be conducted. The initial performance test will be conducted in conjunction with the SO_2 RATA for the source. Consistent with Appendix L of the Consent Decree, the demonstration of compliance and CEMS certification will be achieved not later than 60 days after achieving the maximum production rate of H-4745 or not later than 180 days after initial restart, whichever comes first. For a sulfur recovery plant, restart is introduction of acid gas to the unit.

2.0 FACILITY DESCRIPTION

2.1 Facility Location

The LBR facility is located at 1 Estate Hope in Christiansted, St. Croix, Virgin Islands.

2.2 Source Descriptions

H-4745 is an incinerator used to control emissions from the East Side sulfur recovery plant. Sulfur Recovery Units 3 and 4 (SRU3, SRU4) tail gas is controlled by the use of a SCOT type tail gas treating unit. Exhaust from the SCOT type tail gas treating unit (TGTU) is routed to H-4745. During periods of sulfur recovery plant (SRU or TGTU) startup, shutdown, or malfunction, tail gas is routed directly to H-4745. H-4745 is subject to the SO_2 emission limit specified in 40 CFR Part 60, Subpart Ja as well as the temperature and O_2 operating limits specified in 40 CFR Part 63, Subpart UUU.

2.3 Reference Method Sampling Location

The CEMS monitoring and stack testing locations (as well as other pertinent, descriptive information) for H-4745 are described in Table 3. Appendix 1 of this test plan contains the stack diagrams and dimensions for H-4745. All stack dimensions will be verified for completeness and accuracy at the time of testing.

The RM location and CEMS location are at least two equivalent diameters downstream from the point at which pollutant concentration changes occur and at least a half equivalent diameter upstream from the effluent exhaust.

Table 3: Stack Testing Locations – H-4745

Test Location	Stack Exit Height (feet)	Test Port Height (feet)	Downstream (feet)	Upstream (feet)	Stack ID (feet)
Stack CEMS & RM	195	43	33	152	15.1

2.4 Source CEMS Description

LBR has installed SO_2 and O_2 CEMS to comply with the monitoring requirements of 40 CFR Part 60, Subpart Ja on the stack serving H-4745. Table 4 provides the monitor location, manufacturer, model, serial number, and span of each CEMS for H-4745.

Table 4: CEMS Monitor Information – H-4745

Monitor	Location	Manufacturer/Model	Serial Number	Span
SO_2	Stack	Thermo Environmental Instruments 43Q	1191563098 1191563099	500 ppm 30,000 ppm
O_2	Stack	Emerson 6888Xi	C19-19273824-002	25%

The SO_2 emissions will be measured at the H-4745 stack using a dilution-extractive sampling system. The dilution probe extracts a small sample of the effluent, dilutes the sample with conditioned air, and then transports the samples through an umbilical to the CEMS cabinets. The sample probe is installed in a manner that ensures the collection of representative effluent samples. The designed dilution ratio for the CEMS is 250:1. The O_2 emissions will be measured at the H-4745 stack using an in-situ sampling system.

The SO_2 monitoring system consists of two separate monitors operated in parallel. The range of the SO_2 monitor was established consistent with the specifications in Performance Specifications (PS) 2, the requirements of §60.106a(a)(1) of Subpart Ja and the anticipated emissions during normal operation and startup periods.

The SO_2 and O_2 CEMS were installed on the stack serving H-4745. The stack measurement location was selected at an accessible location where the measurements are directly representative of the emissions from H-4745.

2.5 Applicable Performance Specifications

LBR conducted the installation of the CEMS and intends to conduct an initial certification of the CEMS in accordance with the manufacturers' recommendations as well as the applicable Performance Specifications (PS) of 40 CFR Part 60 Appendix B. Table 5 summarizes the applicable PS for each CEMS.

Table 5: Performance Specifications

Parameter	Location	Performance Specification
SO_2	Stack	PS-2
O_2	Stack	PS-3

3.0 CEMS CERTIFICATION TEST PROCEDURES

This section includes a discussion of the certification test procedures and test methods that will be used for performing the gaseous CEMS certification test procedures, including the relative accuracy test audit (RATA) test methods. The CEMS will be certified in accordance with 40 CFR Part 60, Appendix B, Performance Specifications (PS) 2 and 3. Unless stated otherwise, all stack sampling will be performed in accordance with the applicable test methods as described herein. Any deviations from the standard procedures are clearly noted in the following subsections. The following reference methods will or may be utilized during the test program:

- Reference Method 3A Determination of O_2 and CO_2 (Instrumental Procedure)
- Reference Method 6C Determination of SO_2 (Instrumental Procedure)

All RM analyzers used during this test program will be those models using the analysis techniques typically seen in industry on these types of sources.

Since the SO_2 and O_2 reference method testing is used to certify a CEMS system, the sample site selection and traverse point layout procedures described in 40 CFR Part 60, Appendix B, PS-2 §8.1.3 will be followed. If reference method testing must be performed at a location less than two diameters downstream from the point at which pollution changes occur, a 12-point stratification test will be performed to verify the acceptability of the sampling location.

3.1 CEMS Certification Tests

LBR installed each CEMS according to the manufacturers recommendations and industry standard practices. After re-start of the affected source, LBR will conduct CEMS certification testing in accordance with the applicable performance specifications.

Descriptions of the certification test procedures to be used are presented in the subsections below. The two primary tests to be performed on each monitor are:

1. The 7-day calibration drift test, and
2. The relative accuracy test audit (RATA)

Data recorded by the CEMS may not be used to assess compliance or monitor availability until both certification tests are successfully completed.

3.1.1 7-Day Calibration Error Test

For the CEMS certification, a 7-day calibration drift test will be performed on the stack SO_2 and O_2 monitors in accordance with the procedures specified by 40 CFR Part 60, Appendix B, PS-2, §8.3. The test measures each instrument's daily calibration error during seven consecutive unit operating days. The magnitude of the calibration drift is quantified at approximately 24-hour intervals but is evaluated during seven consecutive unit operating days, not necessarily consecutive calendar days.

The 7-day calibration drift test will challenge each monitor once per day at each of two calibration levels while the monitors are operating in their normal sampling modes. The reference gases need not be certified consistent with §7.1 of PS-2. Table 6 provides the acceptable calibration levels for each of the H-4745 stack CEMS.

No manual or automatic adjustments (i.e., resetting the calibration) will be made to the monitors either prior to or during each of the seven daily calibration error checks. Manual or automatic adjustment to the monitor setting are permitted, however, provided that they are made after taking measurements at both the zero and span-level concentration for that day. If automatic adjustments are made by the monitor, the test will be performed in a manner that will determine and record the extent of the adjustments. The calibration gas will be injected such that it passes through all filters, scrubbers, conditioners, and other monitor components used during normal sampling, and through as much of the sampling probe as practical.

The 7-day calibration drift test results are acceptable if the test results are less than or equal to the levels specified in Table 6 for each monitor. For the SO_2 monitor, the calibration drift is calculated as a percentage of the instrument span as follows:

$$CD = \left|\frac{C - M}{S}\right| \times 100$$

Where:
- CD = Percentage calibration drift based upon instrument span (%)
- C = Reference value of zero- or upscale-level calibration gas
- M = Actual monitoring system response to the calibration gas
- S = Span of the instrument

For the O_2 monitor, the calibration drift is calculated as the absolute value of the mean difference between the reference value and the actual monitoring system response. For the SO_2 and O_2 monitors, the calibration drift on each of the seven days must be less than or equal to the levels specified in Table 6.

The high range SO_2 span for the incinerator stacks is 30,000 ppm. 120 ppm represents the "effective span" of the analyzer considering the dilution ratio of the sampling system. The 120 ppm "effective span" will be used to select the appropriate gas cylinders for direct to analyzer calibrations to minimize safety concerns involved in the use of high concentration cylinders for the measurement range. This approach was approved by EPA's Measurement Technology Group by letter dated July 28, 2010 under previous ownership of the source. A copy of this letter can be found in Appendix 2 of this document.

Table 6: 7-Day Calibration Drift Performance Specifications

Parameter	Location	Span	Zero-Level	Span-Level	Criteria
SO_2	Stack	500 ppm 30,000 ppm*	0-100 ppm 0-24 ppm	250-500 ppm 60-120 ppm	≤2.5% (Each day)
O_2	Stack	25%	0-5% O_2	12.5-25% O_2	±0.5 % O_2 (Each Day)

3.1.2 Relative Accuracy Test Audit

To satisfy the RATA requirements for the SO_2 CEMS and O_2 measurements, the relative accuracy of a minimum nine-run performance test must be less than or equal to 20% of the mean value of the reference data or less than or equal to 10% of the applicable emission standard for the SO_2 CEMS. The SO_2 emission standard for H-4745 is 250 ppm_d @0% O_2.

If the average SO_2 ppm_d @0% O_2 reference method value during the RATA is less than 50% of the emission standard, an alternative relative accuracy will be calculated using the appropriate emission standard value as the basis rather than the average reference method value during the RATA.

The relative accuracy will be calculated using the results of a minimum of nine test runs and one of the following equations:

$$RA = \frac{\left|\bar{d}\right| + \left|CC\right|}{RM} \; or \; \frac{\left|\bar{d}\right| + \left|CC\right|}{ES}$$

Where:

RA = Relative accuracy
d = Mean absolute value of the differences between the CERM and reference method values
CC = Absolute value of the 2.5% error confidence coefficient
RM = Average reference method value (≥ 50% of equivalent emission standard)
ES = Equivalent emission standard (< 50% of equivalent emission standard)

A minimum of nine 21-minute comparative test runs will be performed for the RATA. During each sample run, a 3-point traverse will be conducted (see Appendix 1 for traverse point locations). A sample will be extracted from the stack effluent through a sample probe, sample conditioning system and sample line to a distribution manifold where a portion of the sample gas will be dispersed to each pollutant and diluent analyzer.

The SO_2 CEMS RATA results will be determined on a concentration at specified dilution (i.e., ppm_d @0% O_2.) basis. The concentration at the specified dilution will be calculated as follows:

$$E_{Pol} = ppm_d \times \left(\frac{20.9 - 0}{20.9 - \%O_{2d}}\right)$$

Where: E_{Pol} = Pollutant concentration at a known dilution, ppmd @ 0% O_2
ppm_d = Average pollutant concentration on a dry basis
$\%O_{2d}$ = Diluent concentration on a dry basis

4.0 PERFORMANCE TESTING

This section includes a discussion of the test methods that will be used for performance testing as required by §60.104a(h) of Subpart Ja. Since the sulfur recovery plant is followed by incineration, the H_2S limitations of §60.102a(f) do not apply and as such an initial performance test for H_2S is not necessary and will not be conducted. Unless stated otherwise, all stack sampling will be performed in accordance with the applicable test methods as described herein. Any deviations from the standard procedures are clearly noted in the following subsections. The following reference methods will or may be utilized during the performance test program:

- Reference Method 1 Determination of Velocity Traverses
- Method 2 Determination of velocity and Volumetric Flow
- Reference Method 3A Determination of O_2 and CO_2 (Instrumental Procedure)
- Reference Method 6C Determination of SO_2 (Instrumental Procedure)

All RM analyzers used during this test program will be those models using the analysis techniques typically seen in industry on these types of sources.

The initial performance test will be conducted in conjunction with the SO_2 RATA for the source. The performance test will consist of three (3) one-hour test runs. The average of the three one-hour samples will be used to determine compliance with the emission limit of (250 ppm_d @0% O_2) specified in §60.102a((f)(1)(i) of Subpart Ja.

5.0 PROCESS DATA

5.1 CEMS RATA

During the RATA, all data will be electronically logged and printed out by the DAHS. In order to appropriately calculate and report the CEMS RATA data, the following process data will be provided by the plant, either manually or by the plant's DAHS: (1) date, (2) time, (3) source, (4) operating status, (5) fuel fired/rate, (6) SO_2 ppm, (7) O_2 % and (8) SO_2 ppm_d @0% O_2. All testing will be performed while tail gas is sent to the H-4745 under normal process conditions.

5.2 Performance Test

In order to appropriately report the performance test data, the following process data will be provided by the plant, either manually or by the plant's DAHS: (1) date, (2) time, (3) source, (4) operating status and (5) fuel fired/rate.

6.0 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

The previously described reference methods are very technique oriented. Attempts to minimize any and all factors which can increase test measurement error are performed by implementing a Quality Assurance Program (and their associated procedures) into every segment of the testing activities. The following sections detail all QA/QC procedures to be followed during the test program.

6.1 Sampling Equipment Calibrations

All of the emission testing equipment used will be calibrated according to the procedures outlined in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, EPA-600/4-77-207b.

6.2 Calibration Gases

All calibration gases used during the test program will be EPA Protocol provided by reputable calibration gas vendors. No calibration gas cylinders will be used that have reached or exceeded their expiration date(s), nor will they be used if they contain less than 100 psi of gas. Copies of the calibration gas "certificates of analysis" can be made available on-site during the test program and will be provided in the final test report.

7.0 TEST REPORTS

7.1 CEMS Certification Test Report

Upon completion of the test program, a preliminary (draft final) report will be provided to LBR's Environmental Department – Air Group for internal review prior to submitting the final report(s).

The final test report(s) will include the following:

- All certification test results and calculations
- Field test data (produced by RM and facility, where applicable) of the following:
    1. 7-day calibration drift test
    2. RATA
- Source process data
- RM calibration data
- RM QA check results
- Stack information (dimensions and process/data flow diagrams)
- Calibration gas values (RM)
- Calibration gas certificates of analysis (RM)
- Narrative discussion of the test program (including test method procedures)

40 CFR Part 60 §60.13(c)(2) requires that the CEMS certification report be submitted **within 60 days** of the completion of the certification testing.

7.2 Performance Test

Upon completion of the performance test program, a preliminary (draft final) report will be provided to LBR's Environmental Department – Air Group for internal review prior to submitting the final report(s).

The final test report(s) will include the following:

- All performance test results and calculations
- Field test data (produced by RM and facility, where applicable) of the following
- Source process data
- RM calibration data
- RM QA check results

- Stack information (dimensions and process/data flow diagrams)
- RM calibration gas values
- RM calibration gas certificates of analysis
- Narrative discussion of the test program (including test method procedures)

LBR intends to submit the performance test report **within 60 days** of the completion of the performance testing.

APPENDIX 1

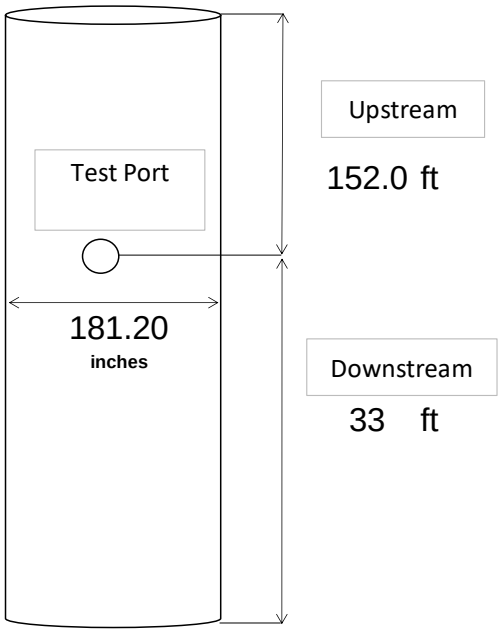
Sample Location Dimensions & Traverse Point Determinations

Client:	**Limetree Bay**
Unit Tested:	**H-4745**
Sampling Location:	**Main Stack**
Stack Diameter:	**181.20** inches
Nipple Length:	**3.00** inches
Number of Test Ports:	**2.00**

Distance from Nearest Disturbance:

Upstream:	**152** ft
Downstream:	**33** ft

SO2/O2 RATA Traverse	% of Diameter	3-Point
	16.7%	33.25
	50.0%	93.50
	83.3%	154.00



APPENDIX 2

July 28, 2010 Alternative SO_2 Calibration Gases

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

JUL 2 8 2010

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

Ms Kathleen C. Antoine, Environmental Director
Hovensa L.L.C.
1 Estate Hope
Christiansted, VI 00820

Dear Ms Antoine:

In a letter dated May 27, 2010, you asked permission to use alternative procedures for measuring sulfur dioxide (SO_2) emissions with a continuous emission measuring system (CEMS) being installed on incinerators used to backup your sulfur recovery units. The sulfur recovery units are subject to 40 CFR Part 60 Subpart Ja, Standards of Performance for Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007. The incinerators are used to oxidize tail gas when one or both recovery units are in startup, shutdown, non-operational, or fully-charged mode.

The CEMS consists of two SO_2 analyzers. One will measure at normal operations and the other at the high concentrations experienced during startup, shutdown, and malfunctions. The CEMS operates on the dilution principle and measures SO_2 on a wet basis. You propose to use a default moisture factor of 8.9 percent obtained from recent testing to convert the measurements to a dry basis as required by Subpart Ja. You note that the incinerators mainly operate in standby mode, and temperatures and the firing rate are maintained at all times with refinery fuel gas. You believe this will result in relatively stable moisture levels in the flue gas. The proposed moisture factor would be updated as needed as future tests are conducted.

Sulfur dioxide concentrations are anticipated to be as high as 30,000 ppm during startups, shutdowns, or malfunctions, and you interpret 40 CFR 60.13(d)(1) as requiring calibration gases between 15,000 and 30,000 ppm. These levels pose a safety risk to operators and technicians. For the high-level analyzer, you propose calibrating in the range of the diluted gas (0-120 ppm) and conducting daily drift tests in direct-calibration mode.

You also ask that cylinder gas audits (CGAs) be allowed in place of required yearly relative accuracy test audits (RATAs) to preclude triggering a tail gas incident by operating the incinerators with tail gas for the RATA. The CGA would be conducted in system calibration mode with a low-level CGA gas of 5-6 percent of span value (1,500-1,800 ppm) and a mid-level gas of 10-15 percent of span value (3,000-4,500 ppm).

We approve of your use of a moisture factor to correct SO_2 CEMS data from a wet to dry basis. We also approve your use of calibration gases in the diluted sample concentration range for the high range analyzer. For the daily calibration drift tests, you may bypass the dilution system and introduce the calibration gases directly to the analyzer.

We believe a CGA in place of the yearly RATA will adequately check the accuracy of the CEMS without undue release of potentially high emissions. Therefore, we approve your use of CGAs in place of yearly RATAs for the incinerator CEMS.

If you have questions or would like to discuss the matter further, please call Foston Curtis at (919) 541-1063, or you may e-mail him at curtis.foston@epa.gov.

Sincerely,

Robin P. Segall

for Conniesue B. Oldham, Ph.D., Group Leader
Measurements Technology Group

cc: Foston Curtis (E143-02)
Kathryn Seaver, EPA Region II